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Industrial FINISHING

Published Monthly in the Interest of Modern Production Finishing

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. . . . and since these namels provide effec- ve resistance to heat, iscoloration, grease, hu- idity (and other kitchen buses) they are well uited for protecting all pes of kitchen equip- ent. Why not try them?

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Stops Glare—Adds Sales Advantages

Operating a business machine all day under bright lights is hard work. Especially if the eyes have to fight against glare from a glossy finish.

The dull, soft texture of Rincontrol absorbs light, prevents glare and reduces eye strain for operators of business machines, thus increases efficiency.

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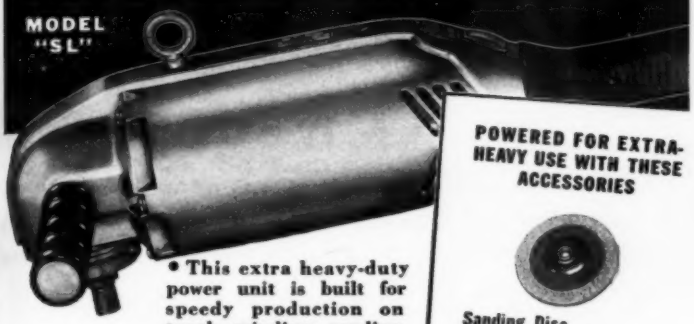
FOR FASTER PRODUCTION ON TOUGHEST GRINDING and SANDING JOBS . . . use this

SKILSAW SANDER-GRINDER

MODEL "SL"



• This extra heavy-duty power unit is built for speedy production on tough grinding, sanding and surfacing operations. Eliminates slow, costly hand methods. Does a better job on metal, stone, wood. No-load speed of 5000 R.P.M.—recommended as most practical speed for 6 in. grinding wheels—to insure fastest production and longest life.

Model "SL" is ruggedly built to withstand roughest handling. Spiral bevel gears run quietly and give long years of trouble-free service. Commutator and brushes are sealed against dirt and abrasive dust. Has reversible handle and light weight for easiest handling. Plugs in light socket.

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For sanding and finishing on all flat, concave and convex surfaces. Removing spot welds, fins, scale. Quickly, easily prepares for lacquer, enamel and other finishes.

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Excellent for cleaning steel beams, tanks, vats, sheet metals, etc. Works faster, better, produces finer results than you can ever get by hand.

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WOOD STAIN

UNIQUE — the only wood stain of its kind — Zaponol has a resin base and CONTROLLED PENETRATION. Through this latter feature the wood is stained uniformly. Zaponol sizes and seals as it stains.

Regular water-stain powders, dissolved in the water solution of Zaponol resin base, permit a wide range of colors which are BRILLIANT and extremely FAST TO LIGHT.

Zaponol ELIMINATES A WASH COAT for most work, another unique advantage. Subsequent coats of finish are not affected by Zaponol nor is it soluble in them. . . . For ECONOMY, for SPEED IN PRODUCTION, for BETTER WORK—use Zaponol Wood Stain. If you haven't seen the booklet, with actual wood panels, that tells about Zaponol you may still secure a copy. Write today.

Zaponol—Reg. U. S. Pat. Off.

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North Chicago, Ill.

INDUSTRIAL FINISHES

See General Review Section Beginning Page 37

Industrial FINISHING

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Published Monthly in the Interest of Modern Production Finishing

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Letters from Readers

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

Bleaching Oak

Can you recommend the name of a manufacturer making a bleach solution suitable for bleaching oak? We have tried several types of bleach, but so far have not found one that gives what we consider good results.—B. Y. Co. (Fine Cabinet Work).

Information given.—ED.

For Polished Brass

We read with great interest Mr. Meyer Rotor's article about "Metal Finishing Troubles" (beginning on page 35 of Dec. 1940 issue) and are wondering whether it would be possible to learn the exact make and number of lacquer used by him as an aid in overcoming the tarnishing of polished brass.

Although we use a degreaser, we do not generally use it for polished brass work, but we have experienced difficulty with tarnishing of brass and believe this lacquer might be a help in our problem.—L. Co. (Craftsmen in Metal).

We are referring you to Mr. Rotor for this information.—ED.

Copper Paint for Boat Bottoms

One of my accounts requests information concerning a copper paint for use on boat bottoms. This particular paint is claimed to resist the accumulation of scum from water, or at least to clean very easily. I will appreciate being advised of the source of supply on this material, and such information on it as you may have in your files.—W. O. L.

Spray Booth Coating

We would like to receive a sample and prices on spray-booth coating that can be either sprayed or brushed on to prevent dust. Any information as to how this is to be applied will be appreciated. What is it mixed with, or does it come ready to apply?—1900 Corp. (Builders of quality Washers and Ironers).

Information given.—ED.

Roller Coaters

We will appreciate your furnishing us with a list of roller-coating machine manufacturers who produce equipment suitable for painting Venetian blind slats, rails and moldings.—W. S. Co.

Grained Paper

Could you tell me if there is an artificially grained paper which, when applied with proper adhesive to wood or metal, will give the appearance of grained wood? I would imagine that this paper would be in sheets similar to a decal. I have been told there is a paper of this kind in existence but have not been able to find it. This

The last word in new finishes!

VINDOLAC

Heavier bodied—Tougher
Smoother flow
No shrinkage

LIQUOR PROOF
A full 27% solids—
Licensed, guaranteed

Order five gallons NOW at drum price and if **VINDOLAC** is not all we claim for it, just tell us and full credit will be given.

V. J. DOLAN & CO., INC.
"Unquestionable Quality" Industrial Finishes
1838 NORTH LARAMIE AVENUE CHICAGO, ILLINOIS

Here's our outstanding achievement for 1940

A FLAT VARNISH MADE 100% OF GUM

Perfection Flat Finishes contain no stearates or resinates or other flattening agents. They are as clear as gloss varnishes having no milky appearance found in conventional flat varnishes. They are waterproof, liquor-proof, proof against milk, rancid butter and grease, urea, etc. Free from orange peel — look like rubbed finish—available for air dry or force dry at elevated temperatures. Also, our SEALER VARNISH covers 65% more surface than lacquer sealers.

Panels coated with Perfection Flat Varnish can be immersed in water for 30 days without turning white or showing any other ill effects. Write us and we'll send panels and samples — and also a panel in water for 30-day immersion test.

PERFECTION PAINT & COLOR CO.
Indianapolis, Indiana

FLEXIBLE AND TOUGH

Flo-Bak Y-536 CLEAR

A HIGH SPEED LINE OF BAKING SYNTHETICS

A clear easy flowing synthetic finish, absolutely water white. Specifically formulated for adhesion to copper and brass. Ideally suited for products requiring a clear, tough protective finish.

- **Hard tough finish**
- **High Lustre**
- **Excellent retention of gloss**
- **Resists acid, alkali, alcohol**

[Baking schedules are adjustable to most finishing schedules. 300° F. for 10 minutes — 275° F. for 20 minutes.]

Full information and samples sent on request.

LACQUERS THINNERS ENAMELS METALIZED FINISHES SYNTHETICS

UNITED LACQUER MFG. CORP.

General Offices and Factory: Linden, New Jersey

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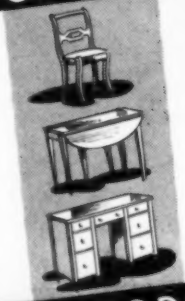
5 ADVANTAGES OF *GKS* FORCED DRYING SYSTEMS FOR WOOD FURNITURE FINISHES...



1. No space needed for over-night drying.
2. Reduced handling and processing cost.
3. "Same-day" finishing and shipping.
4. Reduced finishing material cost.
5. Tougher, more durable finish.

Write for complete information from

GEORGE KOCH SONS, INC.

EVANSVILLE, INDIANA

paper is to be used in refinishing metal and wood desks and other office furniture. If you will advise me whether there is a paper or preparation of this kind available, I will appreciate it.—F. L.

Yes, there are papers of this kind; also, various transfer papers. We are giving you this information by letter. —ED.

Antiquing Copper

In your issue of May 1940, page 50, you have a short article entitled "Antiquing New Copper." I found the information very useful and would like to know upon what other metals this solution will react similarly, such as brass, nickel, silver, silver plate, bronze and cupro nickel.—M. Corp.

We are referring you to the men whose formulas were published.—ED.

Luminous Paint

In your November issue, on page 4, luminous paint is mentioned. Sources of supply or any other information that you may have will be of use to this company if you will mail same to Engineer of Tests, D. & R. G. W. R. R. Co., Denver, Colorado.

Production Striping

In the November 1940 issue of INDUSTRIAL FINISHING, pages 18-22, we notice an article on production striping by Everett Damon. Since efficient production striping would step up appearance and step down costs, we are interested in obtaining names and addresses of striping tool manufacturers. We shall appreciate any helpful information you have to offer.—M. P. Co. (Craftsmen in Metals).

Where is Beugler Mfg. Co., who make stripers, located? We believe we need one.—K. Co. (Novelty Items).

Beugler is located at 4318 W. Second St., Los Angeles, Calif.—ED.

Spray Booth Floor Covering

The September 1940 issue carried an article, on page 60, regarding a spray booth floor covering known as "Sepcote G," manufactured by Industrial Chemical Products Co. I have inquiries for such material every so often and would like to know more

For surfaces subject to severe uses

"STERILKOTE"

For Washing Machine manufacturers who now finish Aluminum—zinc and black plastic agitators in a number of attractive, gleaming pastel shades, STERILKOTE is proving to be the ideal finish for the job.

For washing machine wringers and drainboards requiring a porcelain like finish that is still elastic and tough enough to stand hot washing solutions, abrasion and rough usage, again STERILKOTE is best.

Where a non-toxic, tasteless and odorless liner is required for transporting food products — beverage syrups and beer in metal containers, STERILKOTE is doing the best job.

On fiber plastic door liners for refrigerators the practically nonporous film of STERILKOTE seals in odor and helps to keep boxes sweet and sanitary.

STERILKOTE in Clear or in colors, including irridescents, can be used over any type of metal or plastic surface to enhance the beauty of the object and increase its durability.

No other finish adheres like STERILKOTE. No other finish has the resistance of STERILKOTE. You can even boil STERILKOTE panels in super strength soap and alkali solutions without injuring the finish.

STERILKOTE can be applied by spraying, dipping or roller coating, and can be baked quickly at temperatures slightly over 300° F.

For all Severe Uses and Abuses, consider STERILKOTE.

For particulars, consult the sole manufacturers,

Bradley & Vrooman Co.
Chicago, Illinois

SPRUANCE

for

Wood Finishing Materials

STAINS
FILLERS
SEALERS
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VARNISHES

Spruance materials have long been standard on fine radio cabinets, case-goods, novelty furniture, etc. Working samples will prove convincing. Write TODAY.

THE GILBERT SPRUANCE CO.

RICHMOND & TIOGA STS.

PHILADELPHIA, PA.

SPRUANCE QUALITY

Specialists in the manufacture of wood and metal finishing products since 1907.

about it and its approximate price. It sounds good and I should be glad to recommend its use if it is approved by the insurance companies.—E. F. M. (Representative.)

We are referring you to I. C. P. Co., 3777 Bellevue Ave., Detroit, Mich.—ED.

Offers Man a Chance

In the November issue of INDUSTRIAL FINISHING, on page 10 and continued on to page 77, there is a published letter under the title, "Wants to be Foreman," signed by R. H. B., which is of interest. If you will put the writer in touch with this young man, it is quite possible that we could offer him something of interest.—D. P. C. (Superintendent of large Furniture Factory.)

Norris Painting Machine

Please advise if you know the present address of the manufacturers of the Morris Electrical Painting Machine. This was formerly handled by the Electrical Painting Machine & Appliance Co., N.Y.C. We are unable to locate either name in the telephone directory.—C. & M. (Hardware & Mill Supplies.)

You probably have in mind the "Norris" Electric Painting Machine, which is now manufactured by Jas. H. Matthews & Co., 3942 Forbes St., Pittsburgh, Penna.—ED.

Infra-Red Baking

We would greatly appreciate your sending us copies of any articles, which you have run, giving information on the use of infra-red ray lamps as heating units for baking enamels. —T. C. Co.

We are sending you copies of several.—ED.

To Stand 500°F.

We note that in one issue of INDUSTRIAL FINISHING Magazine, one of your readers requested information about a heat-resisting lacquer that would stand 500° of heat. If you know of anyone making a lacquer to withstand this we would be interested in trying it out on our line of ash trays. —C. B. Co. (Mfrs. since 1895).

In a letter we are submitting names of a few firms who, we understand, manufacture a material that will probably meet your requirements.—ED.

87% IS SEEING

SMELL
TASTE
TOUCH
HEAR

In the Home...

Do the family like it?
Do friends admire?

Home is the place where furniture, furnishings, radio, piano — everything is put to the test!

Mrs. Public knows this and is thinking about it when she decides (or doesn't decide) to buy your product.

Psychological tests prove that 87% of all first impressions comes from what is seen. 87% is seeing!

Therefore, it pays to

choose the SUPERIOR FINISH!

STILLE-YOUNG

LACQUERS
SEALERS
STAINS
ENAMELS
FILLERS

Manufacturers • CHICAGO

The primer booth (shown on this page) is 38-ft. long and has equipment for five spray operators.

The finish-coat booth (opposite page) is 42-ft. long and has equipment for seven operators.

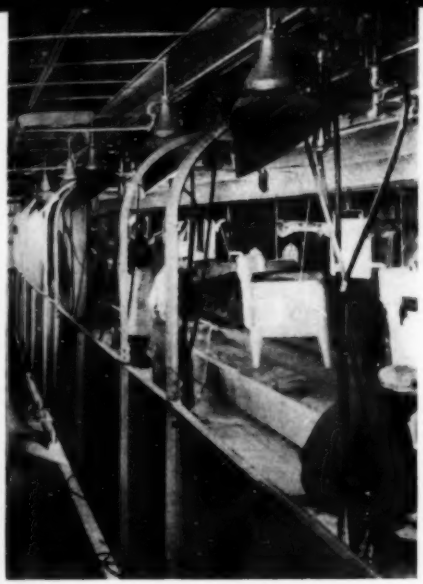
New Finishing System for M

WHEN Maytag engineers were given the task of developing and placing in production the New Maytag "Master" washer, they knew they had to provide a better finish for it than had ever been placed on a washing machine before. Accordingly, they spent months of exhaustive painstaking exploration in the entire field of industrial finishes; months of testing formulas, of selecting and discarding samples; always narrowing the group of finishes under consideration by the elimination of those that were not quite acceptable. Then, finally raising the required standards of all the individual tests—alkali, humidity, adhesion, wear, color fastness, ductility and luster—a last superlative effort produced a finish satisfactory, even to the exceptional requirements initially set.

Many other decisions had to wait upon the final determination of the finishing material. But with this important matter settled—the problems of coatings, metal preparation, rust-proofing, baking schedule, types of ovens, heating units —methods of assembly were aggressively attacked. These efforts resulted in the design and installation of the new Maytag finishing system which is thought to be the most advanced of its kind in present day use.

On Fourth Floor and Roof

The placing of parts on the conveyor, all assembly work, spraying, and final finishing are done on the fourth floor. The ovens, rust-proof-



Illustrations, courtesy of
The R. C. Mahon Company

BY THE MAYTAG TECHNICAL STAFF

Maytag Washing Machines

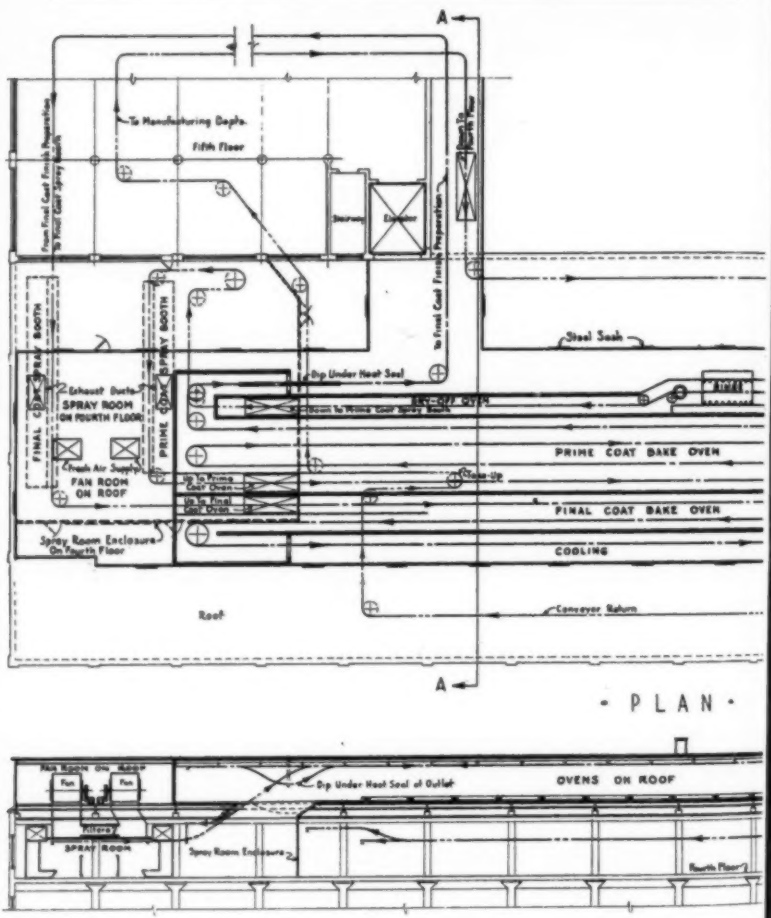
ing and washing equipment, oven heaters, and air make-up for spray booths are on the roof directly above. This is better displayed in the accompanying 2-page drawing, which shows a diagram of the system, and in the illustration of the housing which encloses the equipment on the roof.

All parts to be processed are placed on the conveyor chain and carried to the roof, where they enter the alkali washing machine; then they proceed through two rinses, the rust-proofing tank, a third rinse, and the final chromic acid rinse, before entering the dry-off to be returned to the fourth floor, where they receive the prime coat.

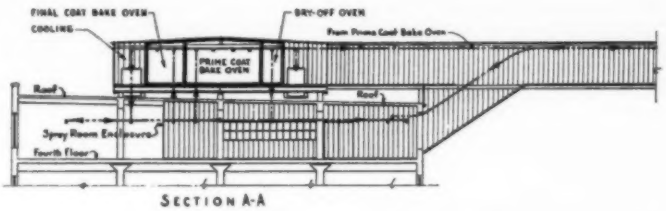
One of the outstanding features of the rust-proofing system is the continuous enclosure of all the stages, even into the dry-off oven. Features of the cleaning and rust-proofing equipment are the straight line, close chemical control, automatic steam regulators on all tanks, pressure and temperature indicators on all pumps. All parts—sheet metal, iron and non-ferrous castings—go through this process and emerge completely dry, spotlessly clean, and especially prepared to receive the finishing coat.

Hydro-Filter Spray Booths

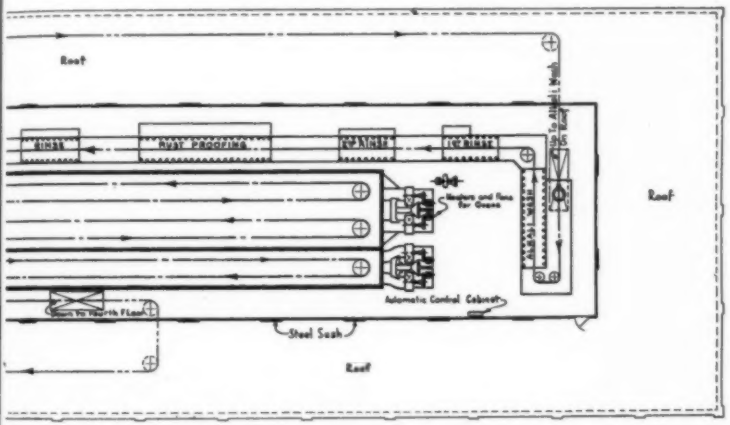
The spray booths, shown in the illustrations, are of the latest hydro-filter type, using the Mahon principle of flood sheets and special spray arrangement to insure complete paint removal before air is exhausted to the outside. Water

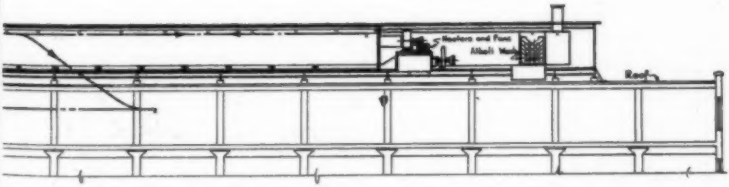


The accompanying drawing, of the complete installation, shows how this system was designed to utilize a minimum of floor space within the plant proper, yet each operation in the finishing process is perfectly coordinated to produce the desired results at the lowest possible cost in operation, and at a minimum capital outlay for the manufacturer.



SECTION A-A





This installation, which includes complete metal-cleaning, rust-proofing, drying, spraying and enamel baking equipment for finishing washing machine parts, is unique in that the entire system, with the exception of the spray booths, is located on the roof of the plant. It is a typical example of advanced engineering in a highly specialized field.

The equipment is housed in a fire-safe, all-steel enclosure with ample room for access to any mechanism that might require adjustment or cleaning. A continuous overhead conveyor carries the parts from the various manufacturing departments through the complete finishing system where two coats of synthetic enamel are sprayed on and baked.

tanks for retaining the sludge are of special design to fit the Maytag requirements.

The primer booth is 38-ft. long, with an exhaust capacity of 36,000-cu.ft. per minute. Spray equipment for five operators is provided. The spray booth for the finish coat is 42-ft. long, with an exhaust capacity of 40,000-cu.ft. per minute, and spray equipment for seven operators. A small special color spray booth 4-ft. long, of the same design, is located at one end of the final coat booth; it is equipped for one operator. As shown in the illustration, the primer booth is on the left, with the final coat on the right.

As the parts leave the prime-coat spray booth they are returned to the roof through the bottom seal. Here they are subjected to a 30-minute bake at a temperature of 315° F. The conveyor then carries them out of the oven through the cooling tunnel and they are received from the conveyor at station No. 2. At this point they are transferred to traveling bank conveyors (which are conveniently arranged for unit assemblies) and finally converge at station No. 3 as assembled units, and are placed on the finish-coat chain.

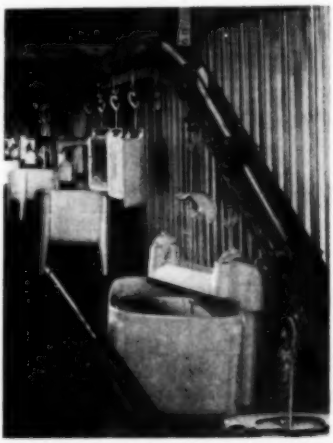
Finish Coat; Maytag Enamel

Before entering the finish-coat spray booth the washers are cleaned with naphtha and sanded lightly where necessary. In the final coat spray booth they receive their coating of special Maytag enamel, passing on through the roof—to the finishing oven for the final bake of 30 minutes at 300° F.

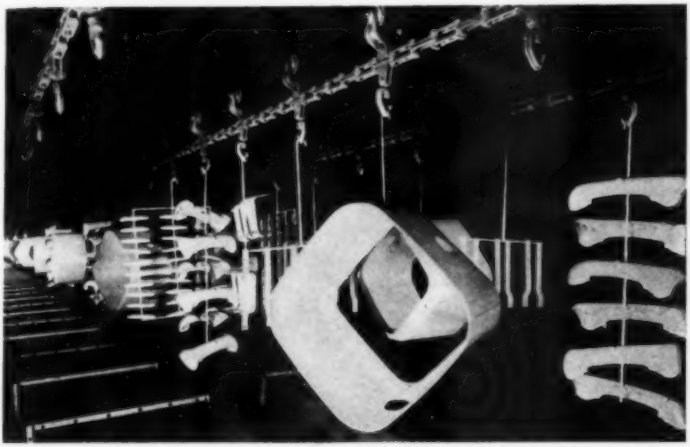
On exit from the final-coat oven, the washers pass through a cooling tunnel on the roof before returning to the fourth floor at station No. 4, where final trim is started before unloading the washer at station 5. From this point the washers are carried on a series of chain, belt and gravity-roll conveyors through the final trim, inspecting and crating stations, and to the car for shipment.

Gas-Fired Ovens

The heating system and the means of supplying air to and exhausting it from the spray room are of special interest. Also, the paint storage and mixing room. Both ovens are direct-fired with butane gas. Butane is delivered to the 30,000-gallon storage tank in 10,000-gallon tank cars, under pressure, as a liquid. Here the liquid is vaporized with low-pressure steam and conducted to the heating system as a gas, under 2½-lbs. pressure. There it is reduced to a pressure equivalent to 10-in. of water before entering the zero regulators of the burners. Here are four burners, each with a capacity of 2,000,000-b.t.u. per hour, or a total of



Finished products descending from cooling tunnel (following the last oven baking) to the fourth floor for their final assembly.



Washing machine parts hanging from conveyor as they pass through prime-coat oven.

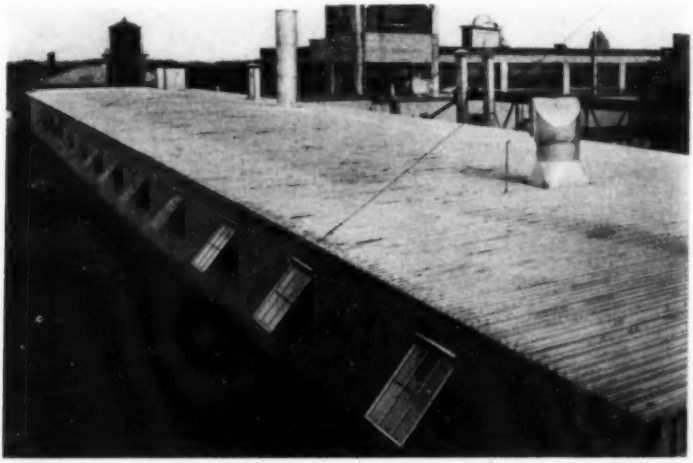
8,000,000-b.t.u.—four times the operating load. This has given exceptional sensitivity of control and made for faster come-up time, and has benefited greatly in control on shut-downs at noon and at night.

An excellent feature of the system is the direct firing of the gas, particularly in the top coat, resulting in high efficiency and close control. The burners are equipped with the latest automatic lighting and safety-control equipment, requiring very little supervision. Two burners heat the primer oven (14½-ft. wide, 200-ft. long) to a temperature of 315° F. The final-coat oven is 7¼-ft. wide and 200-ft. long. Exhaust gases from both of these ovens are used to heat the dry-off oven, which is 4-ft. wide and 71-ft. long, before exhausting to the outside. In each oven there is re-circulated some 8,000-cu.ft. of air per minute, which is controlled at the burner duct and properly adjusted to keep the entire oven in balance. The ovens are controlled by two automatic temperature recording instruments, which insures a constant temperature at all times.

Conditioned Air to Spray Room

Eight thousand cubic feet of air per minute is delivered to the spray room, the controls for this purpose being located in an enclosed room directly above the spray booth. Here the air is brought in from the outside through louvres and preheated by non-freezing coils, using 100-lbs. steam pressure and having a capacity of heating air from 20° below zero to 54° to 60° above zero, before entering the water wash. The air is washed, passed through the tempering coils and sent to the spray room through a large circulating fan.

The temperature in the spray room is held at 85° to 95° F. throughout winter and summer, giving ideal spraying temperatures at all times. The air, just as it en-



Metal-cleaning and rust-proofing equipment and ovens are in a new structure on roof.

ters the spray room, is filtered through glass wool. The filters remove any possible trace of dirt, particularly fine carbon which may not have been removed while coming through the water wash.

Two large exhaust fans, directly above the primer and final-coat spray booths, receive slightly less air than that furnished by the air make-up supply fan, which causes the entire spray room to be under a slight air pressure. This eliminates all possibility of dust-laden outside air entering the spray room.

Paint Storage and Mixing

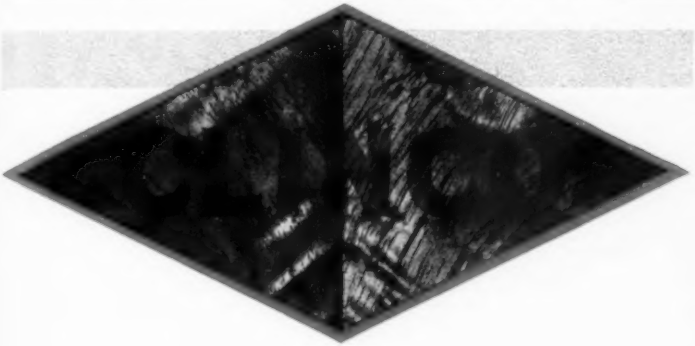
To all this modern equipment was added a new paint storage and mixing room. In this room is located an automatic heater which maintains the proper temperatures, even in the coldest weather. New circulating pumps and tanks were installed, along with master liquid pressure regulators and filters, master air regulators, and individual regulators on liquid and air outlets for each operator.

The system has been set up to handle one primer and one or more final color coats. All handling of separate parts throughout the system is done on overhead monorail conveyors. All assemblies are made on conveyors designed especially for the purpose.

The entire system was designed, and in active production operates, as a huge single piece of equipment, coordinated and synchronized in all its component parts and flexible as to control and production demands. It has proved itself to be a necessary and successful adjunct to the new finish developed for the new Maytag master washer.

Designs Attractive Packages

William O'Neil, industrial designer, 50 Rockefeller Plaza, New York, N. Y., has been retained by The Farboil Paint Co., Inc. of Baltimore, Md., as design consultant on packaged merchandise.



—one of the best names in WOOD FINISHES

CLINCO - MADE FINISHES

Have earned a high reputation for quality, uniformity and economy.

If you have a problem of dressing up cheap furniture, or protecting and enhancing the beauty of fine furniture, there is a Clinco lacquer that will do the job.

Along with our complete line of sealers and clear lacquers, we specialize in pigmented finishes for dinettes, kitchen cabinets, picture frames and toys.

Let us work out your problems at no cost to you.

THE CLINTON COMPANY

1210-1230 Elston Avenue **Chicago, Illinois**

Smash that bottle-neck!

● Too often obsolete painting and coating methods form a bottleneck, through which manufactured goods move only at a slow and costly pace. America must smash that bottleneck—speed up! The need for goods now is a race against time.

Consider Warner & Swasey of Cleveland, Ohio. With two new additions to its huge plant, its men working in three shifts 24 hours a day, *production has increased 100%*—to supply turret lathes urgently needed for industries working on national defense.

Warner & Swasey's finishing department was modern and adequate for normal production. But to double

Modern DeVilbiss Down-Draft Water Wash Exhaust Installation at Warner & Swasey, Cleveland, O.

existing equipment would have taken productive floor space —multiplied handling time. Instead, one new DeVilbiss down-draft exhaust installation now does the entire job of spray painting, handling its 100% increase with no obstruction between assembly line and shipping room.

There's no bottleneck in Warner & Swasey's finishing department!

Whatever your product, if you need more finishing capacity, more finishing speed, DeVilbiss can help you. Let a DeVilbiss engineer show you how. Send for him—now!

THE DEVILBISS COMPANY • TOLEDO, OHIO

Canadian Plant: WINDSOR, ONTARIO

Decorating Fine Fabrics

BY STENCIL SCREEN PRINTING PLUS . . . .

BY HARRY L. HIETT
General Manager, Prairie State Products Co.

WITH ALL THE associated ideas and influences which go into our modern home life, the ambition of every man is to create or maintain a home. A home is actually man's headquarters, whether he is an industrialist, a laborer or farmer. Thus the importance of a home contributes a definite relation to business which cannot be minimized or ignored. The basic market of all business centers around the home life of the nation.

The activity of an industry or business, in the distribution or production of a product, either for direct home use or otherwise, is governed by the viewpoints or decisions of the home circle.

Today, as never before, the appearance appeal of a product, rather than its price tag, is a dominant factor in merchandising. The manufacturer realizes that design, color attractiveness and construction are of paramount importance to the buyer.

During the past two decades we all have accustomed ourselves to certain gradual and severe radical changes which have overtaken us, and we might say that a technological revolution has swept through our American industry.

Through the principle of appeal and construction, hundreds of millions of dollars have been spent on better processes and methods of production for the welfare and protection of our home life. New alloys, new types of fabrics and textiles, new chemical compounds, new and lasting industrial finishes, and new fabrication materials, have made their appearances to make our home lives more pleasant and convenient.

Today, no matter where one turns, he is bound to be faced down with complete newness. Even the atmosphere indoors is mechanically controlled and purified.

One may sit in splendor and complete relaxation on furniture fashioned in new lines, surrounded with new and distinctive floor and wall coverings, tapestries, etc., with architecture in new lines and in harmonizing color schemes.

Attractive Design and Decoration Make Effective Sales Appeal

To make a product attractive, manufacturers are giving hundreds of thousands of dollars to industrial designers (a comparatively new profession) for creations which will give their products immediate acceptance.

Design is, without a doubt, the most fascinating of all pursuits. Beginning with nothing and finishing up with a creation complete,

constitutes a thrill in which only the artist who is guided in his achievements by or through an invisible power, can appreciate—whether it is on canvas, in clay, in building, interior, decorating, or advertising design.

Benjamin Franklin once remarked that the most difficult task in literature was to compose a thing concise and simple. This reflects back upon our present trend of severity or streamlining, so to speak, which is a combination of simplicity and pleasing beauty, with a minimum of waste space and inefficiency.

Color a Dominant Factor

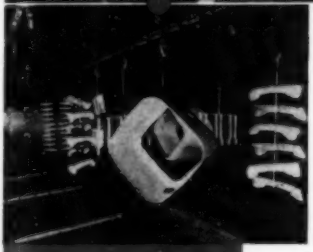
Color application and arrangement play an important part on our modern trend of living, so much so that it has become a veritable panacea for every merchandising problem. Every type of manufacturer has rallied to the call of color for his product, through public demand. This, too, must be used in a simple cautious way, so as not to be too extreme or gaudy or overdone to prove most effective.

Every hue, tint, or shade of the painter's palette is called into service for the presentation of a product designed to attract the prospects' attention. Considerable study, experimental work and research are required by those who prepare or dabble in color and other mediums for surface application for decorating purposes.

Decorating has become a vital consideration of foremost importance to practically every product for direct home use, and this article, the first of a series that will prove of utmost importance, not only to the merchandising executive but to the technician actually in charge of the decorative application, is written and illustrated by one who needs no introduction.

Decorations were designed and applied by the author who used the screen process method of applying colors to a black centerpiece, with overtones and tinting added by skillfull spray application. The colors used include red, yellow, orange, blue, green and grey.

Another Complete Mahon FINISHING SYSTEM



This illustration shows Mahon Hydro-Filter Spray Booths installed in the spray room of a complete Mahon Finishing System at The Maytag Company's plant, Newton, Iowa. Enclosed parts passing through the prime coat baking oven — part of the same installation.

. . . a Typical Example of Thorough Engineering

This Complete Finishing System at the Maytag plant, Newton, Iowa, is unique in that the entire system, with the exception of the Spray Booths, is located on the roof of the plant. All Metal Cleaning, Rinsing, Rust Proofing, Drying and Enamel Baking equipment is housed in an all-steel firesafe enclosure on the roof, yet each operation in the finishing process is perfectly coordinated to produce the desired results at the lowest possible cost . . . It is a typical example of Mahon's advanced engineering in this highly specialized field. You can turn your finishing equipment problems over to Mahon engineers with complete confidence. Consultation will not place you under any obligation — Write today.

THE R. C. MAHON COMPANY

Detroit - - - - Chicago

Designers and Manufacturers of Complete Finishing Systems, Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Drying and Baking Ovens, Dust Collectors, Filtered Air Supply Systems and Many Other Units of Special Production Equipment.

MAHON

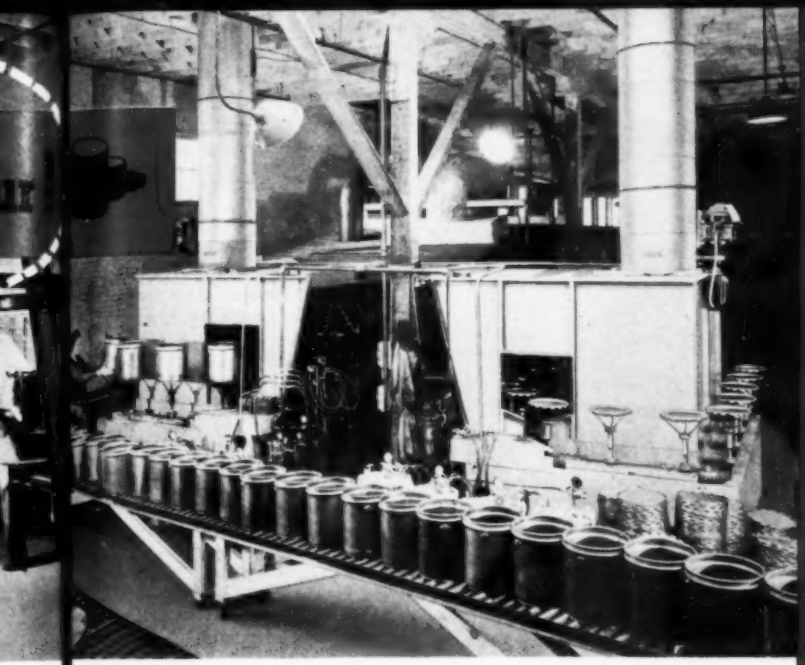
BINKS Automatic Equipment Finishes 800 to 1,000 Pails an Hour, Inside and Outside, with Two Materials

The problem of the **Bennett Manufacturing Company of Chicago, Illinois,** was to finish pails at a high rate of speed at a minimum cost. The outside and bottom of the pails and the top of the lids were to be finished with a pigmented lacquer, while the inside of the pail and the underside of the lid were to be finished with a clear lacquer.

To lick this problem Binks Engineers designed the set-up illus-

Binks Manufacturing Company

3114-40 CARROLL AVENUE • CHICAGO, ILLINOIS



trated above. It consists of two specially engineered units of the well-known Binks Automatic Spindle Finishing Machine type. As fast as the pails and lids are placed on the spindles they are carried off to spin through the spray booths past special automatic spray guns that give them a perfect finish inside and outside with the desired materials at the rate of 800 to 1,000 pails an hour.

The engineers who designed and built the installation reported above, and countless other devices for finishing everything from golf balls to army bombers, are at your service. They will welcome the opportunity to submit without obligation plans and costs on any finishing installation you have in mind, regardless of its size or complexity.

Send now for your copy of this catalog!

NEW YORK - DETROIT - SAN FRANCISCO - PHILADELPHIA
PITTSBURGH - CLEVELAND - ST. LOUIS - MILWAUKEE - BOSTON
LOS ANGELES - SEATTLE - WINDSOR, ONTARIO, CANADA

Stenciled decorative effects produced with colored flock sprayed over a copper-colored piece of celanese. It shows red roses with green leaves in a vase of two-tone lavender.

Too much cannot be stressed upon of the importance in which the stencil screen process plays in the decorating of useful products for the home — from glassware, printed in ceramics, in appropriate design and color, to the printing of all types of textiles and fabrics, and on up to the imitation printing of wood grains for all classes of metal and wooden furniture.

Screen-Printed Fabrics

This article deals primarily with the printing of fabrics which enter into many products for home use. There is a vast array of these items —many more than those which the writer has illustrated.

Window shades of a comparatively new material which is washable, tear-proof and sunproof, are being screen-printed in vivid tones to harmonize with practically every room setting, from the play room and nursery to the sun porch and living room. Draperies and tapestries of different texture, wallpapers, are being screen-printed.

The scroll and scalloped design on the bottom drop of awnings, as well as the home owner's initial, centered in a wreath or other design in the middle of the awning, is screen-processed. Hundreds of lamp shades of special translucent treated cloths are being printed in neat attractive designs and transparent colors, appropriate for any room, play room or nursery. Table runners and center pieces of different materials are screen-printed in appropriate disigns; likewise laundry bags and shoe bags.

In the illustrations prepared by the author, especially for INDUSTRIAL FINISHING Magazine, gliders and other summer furniture, as pictured at the top of the illustrations, pay stepped-up dividends when the back rests or pillows of different washable fabrics are processed in colors and designs, appropriate to the surroundings. Flowers, birds, marine scenes, and other conventional designs offer suggestions of summer coolness.

Furniture Manufacturers' Opportunity

Furniture manufacturers also might add summer slip covers to be sold along with upholstered furniture, with appropriate designs printed thereon, saving the housewife the trouble of having such slip covers tailor made and perhaps lacking a pleasing design.

Screens with imitation leather fabric may be incorporated into the construction and printed in a design that will be pleasing yet not tiresome. There are a great number of exceptionally durable and washable cloth materials, made with suede, semi-suede, imitation leather and enamel finishes. These can be screen-processed in many different designs, symbolizing the use for which they are made.

Another finishing service

by PALMER-BEE

Here are a few typical installations by Palmer-Bee:

Johnson - Carper Furniture Co.
Roanoke, Virginia

Lenoir Furniture Corp.
Lenoir, N. C.

Memphis Furniture Mfg. Co.
Memphis, Tenn.

Heywood - Wakefield
Gardner, Mass.

Unique Furniture Makers, Inc.
Winston-Salem, N. C.

Our **new** plant at Winston-Salem, N. C. is now in operation, assembling and fabricating conveyor finishing systems, and warehousing a complete stock of materials and parts. This new plant will make it possible for us to better serve furniture manufacturers in this area—those already operating conveyor finishing systems and those contemplating installing such systems. At no cost to you one of our skilled engineers will analyze your plant and production, submit a plan and program through your finishing room — warehouse — cabinet room — machine room. Avail yourself of this service.

PALMER-BEE CO., Detroit, Mich.

Kindly mention INDUSTRIAL FINISHING when writing advertisers

Hassocks of heavy durable washable leatherette and moleskin finish, as pictured in the illustration, are screen processed in one or more colors, eliminating piecing together of different colored pieces of fabric. Bath curtains, both of transparent materials (of which there are quite a few types) from treated silk to new synthetic materials, and other textiles printed in appropriate design.

Waterproof Washable Covers

Last, but not least, we have the waterproof washable table cover, having a fresh interest appeal. Many of these have the appearance of natural linen and can hardly be distinguished from the real thing. In some instances the design is screen-printed first and the waterproofing treatment is applied afterwards, with any one of a dozen or more products designed especially for this purpose. Restaurants and hotel dining rooms are using this type of covers, as they are kept fresh and clean with the use of a dampened cloth.

Stencil screen process-printing offers a good medium for flocking where a design is desired in a suede or plush washable finish.

This article will be followed by another article which will give a detailed description of the preparation of the stencil screen plate, and the type of color for application on different type fabrics, as well as flocking information.

R. E. Templeton Joins Hilo

Mr. Robert E. Templeton has joined the Hilo Varnish Corp., Brooklyn, N. Y., as a sales representative and will call on the eastern trade regularly to offer his services on any problems relating to decorative and protective coatings. Mr. Templeton is a capable, energetic and conscientious worker. He has had research laboratory and field experience and is well qualified to assist manufacturers on finishing matters.

New Addition to Plant of Tousey Varnish Co.

The accompanying picture shows a view of the new building which is an addition to the Tousey Varnish Co's. 24th Place plant in Chicago, Ill. It contains approximately 14,000-sq.ft. of manufacturing space, in addition to a large truck garage. The building also contains additional tankage and pumpage systems for solvents. Total cost was approximately $75,000. The company's general offices are at 520 W. 25th St., in Chicago.

INFRA-RED

Leading Infra-red Users Have PROVED
Ault & Wiborg Finishes Are Faster Curing, Harder, More Flexible!

HERE on this page are photographs showing interesting infra-red finishing operations at the Fluid Heat Oil Burner Division of Anchor Post Fence Company, Baltimore. At Anchor, and at other plants where infra-red baking is being used, A & W finishes have *proved* their superiority. Users have found that A & W infra-red finishing materials cure faster, to harder, more flexible films. Ault & Wiborg research produced finishes especially designed to take maximum advantage of the speed baking which infra-red curing makes possible. These finishes have been used commercially for many months by some of the largest infra-red finishers. The experience of these leading manufacturers has *proved* the definite advantages that A & W infra-red finishes possess.

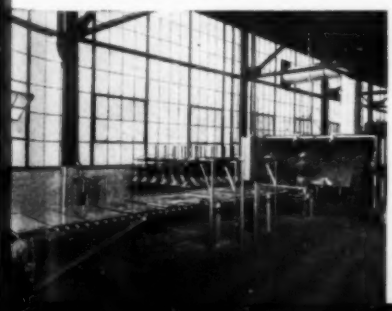
If you are using infra-red, or if you plan to do so, investigate Ault & Wiborg's complete line of infra-red finishing materials. Ault & Wiborg engineers have made a thorough study of the problems involved in infra-red operations. Let their knowledge and experience work for you; let it help you shorten finishing schedules, without sacrificing surface qualities. Write NOW to Ault & Wiborg, stating your requirements.

AULT & WIBORG CORPORATION

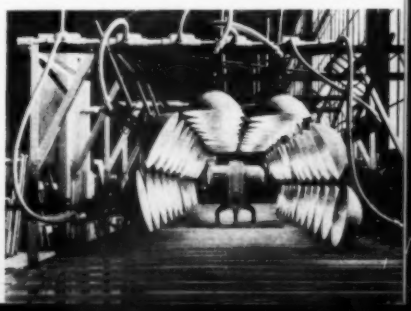
Makers of POLYMERIN, the Original Speed-bake Finish

DEPT. I. F. J. • 75 VARICK STREET • NEW YORK

HERE'S HOW *Ault & Wiborg Polymerin finish is baked on panel sides at the Fluid Heat Oil Burner Division of Anchor Post Fence Company, Baltimore, in only eight minutes!*



COMPLETE *Fluid Heat oil burner units, finished with Ault & Wiborg's extra-durable Polymerin are baked under infra-red lamps at Anchor. Leading finishers use Polymerin!*



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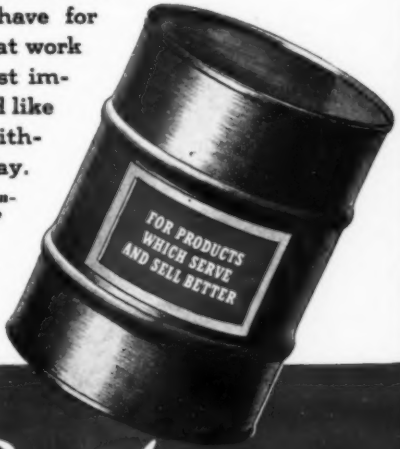
HY YOUR FINISH CAN BE BETTER—

Here's the answer—Lowe Brothers have developed more than 60,000 special formulas for finishing products of every conceivable type through years of experience. During that time our forward-looking chemists and practical paint men have constantly searched for (and found) new ways of improving application-economy and efficiency—new ways of increasing product eye-appeal and buy-appeal.

So, we have experience for sale—the experience of a field and laboratory research organization that has proved its ability to develop and test finishes which help products serve and sell better—and cost less to apply. The experience we have for sale costs you nothing. It's at work for some of the nation's most important manufacturers. We'd like to put it to work for you—without obligation. Write today.



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Lowe Brothers

SPECIAL INDUSTRIAL FINISHES

« The War's Effect on Finishing Materials »

BY S. P. WILSON, Ph.D.

THE effect of the series of wars now raging in all parts of the world has not as yet been felt to any great extent by the finishing materials industry. True, there has been a sharp increase in the price of tung oil. Shellac is advancing slowly but steadily. Various imported pigments, plasticisers and other materials are difficult to get, but forethoughted stocks, the ingenuity of the American Chemical Industry, and the fact that most of the world's seas still lie open for our imports have thus far prevented any sharp difficulties, and industry has thus far proceeded under remarkably normal conditions.

There are possibilities, however, that a long lasting war, spreading to new areas and requiring great increases in material, may affect our industry in several ways. First, owing to shipping losses and the consequent necessity for using available space for vitally needed munitions and food, the supply of imported gums and oils may decrease substantially and the price may inevitably rise. The important materials potentially affected by this situation would be such items as Congo copals from Africa, Kauri from New Zealand, shellac from India, dammars from Singapore and Batavia, and the ilmenite ore from Travancore, India, from which much of our titanium oxide white pigment is extracted.

Tung Oil; East India Gums

The tung oil situation is complex, for although the opening of the Burma Road theoretically gives an outlet for Chinese oil to Rangoon and thence to us, the long and hazardous truck haul over often-bombed roads is very costly and the outlook for lower prices on imported oil is not good. Perilla oil is in a similar position; it is scarce and quite high in price. While the African copals have lost their original sorting factories in Belgium and Holland, it is understood that other facilities have been provided and that, barring extension of actual hostilities to the Belgian Congo and other parts of Africa, the chief difficulty in regard to these materials is the above mentioned diminishing cargo space and increased freight and insurance rates.

Secondly, there is the possibility of further trouble in what at this writing seems Japan's avowed intention of moving southward. Should this lead to hostilities in the neighborhood of the Dutch East Indies and Singapore, not only would the production and export of Ba-

tavia and Singapore dammars be affected, but also the pontianak and Manila gums, Batu and other East India gums, gum elemi and other products of the East Indies, Borneo and the Philippines. Japanese domination of this area might not necessarily mean a cessation of supplies, but the previous disturbance would undoubtedly curtail output and dislocate the smooth flow of materials. Should Australia and New Zealand become involved, kauri gum will be similarly affected.

Toluol Used in Explosives

The third possibility is of a different order. Many of the raw materials of the paint, varnish and lacquer industry are also raw materials for explosives, poison gases and other munitions. For instance, toluol is used as a lacquer and synthetic enamel diluent or solvent to the extent of millions of gallons annually. It is also the base of TNT, the most widely used high explosive for bombs, mines, torpedoes and shells.

In the last war, with scarcely any use for toluol owing to the small size of the then infantile lacquer industry and with synthetic enamels not even imagined, the demands of the munition plants show the price from around 23c per gallon to $7.00 a gallon, with a final stabilization at $1.50 per gallon. The government has started construction of several large TNT plants which, when completed some months from now, will draw very heavily on available toluol. The present emphasis on air warfare increases this potential demand, for while only 5% to 20% of the gross artillery shells were TNT, almost 60% of the weight of airplane bombs is explosive—either straight TNT or a mixture of this with ammonium nitrate.

When one considers that already up to 2000 tons of bombs are claimed to have been dropped by both sides (Great Britain and Germany) in a single day, the teriffic demand for toluol that may develop is obvious. How much we are now shipping or may ship abroad is not easily discovered, but the possible implication is that when nitrating capacity is built, a huge withdrawal of toluol from peace-time uses is indicated. If so, a still further demand on the already peak production of high solvency naphthas will result.

Alcohol; Acetone; Nitrocellulose

Another solvent that is in a precarious position is alcohol, which is used in huge quantities in the manufacture of smokeless powder. Here a mixture of alcohol and ether, which is derived from it, is used to colloid the nitrocellulose to permit its being formed into the desired type of grain. In England acetone is used for a similar purpose and already our exports of acetone have been very high. This has released all of our surplus stocks, with a possibility of a stringency in this market developing. Inasmuch as acetone is related to isopropyl alcohol and acetate, a large demand for acetone might imply the preferential conversion of the isopropyl alcohol to acetone.

The nitrocellulose situation would on the surface, be most vulnerable, but from present indications the supply of lacquer-type nitrocellulose will not be affected. Several huge smokeless powder plants are being built and will be equipped to nitrate cotton to the proper degree for powder, which differs substantially from that for lacquer cotton.

What the effect on the price of cotton linters, and thus on lacquer nitrocellulose, this new huge de-

mand will cause is only speculative. Linters are a by-product, the small fibres encasing the cotton seed, and may not be in the same condition of over production and surplus that cotton fiber is. Purified wood pulp can also be used and, to some extent, is already being utilized.

Titanium; Zinc; Lead; Aluminum

There are many other possible conflicts between war requirements and those of our industry for certain materials. Titanium products are used as white pigments and also as materials for smoke screens and for special steels. Molybdenum is a requirement for many steels and also is used for the lead molybdate orange pigments now widely used.

Zinc and lead are widely used for making zinc oxides and zinc sulfide white pigments and the white lead, red lead and blue lead pigments; but they are also under heavy demand by the armament industries and there are indications that a shortage of zinc as well as copper is possible.

The demand for aluminum by the aircraft industry is almost unlimited and may result in some effect on the aluminum bronze powders so widely used. Many more cases could be cited but they follow the same pattern. Let it be understood that this writer does not predict the disappearance of any of these materials from the market, but a rationing and a possible price increase seem at least conceivable.

Factors in Our Favor; Domestic Sources of Supply

As a counterbalance to all this there are other factors. Methods of making toluol from petroleum products have been worked out and at least two large plants, with their products ear-marked for defense, are being built in Texas. When these are completed many millions of gallons of additional toluol will be available.

The position of phenol or carbolic acid, which is used extensively in synthetic resins and also in the explosive industry for the manufacture of picric acid and ammonium picrate, is greatly improved by a new plant using a much improved process and which can produce about 12,000,000-lbs a year.

The development of domestic titanium ore is certain to be increased and low grade zinc and lead deposits, which normally cannot be profitably worked, will be brought into production.

As to tung oil, the material first and most affected by the international situation, much has been done. Formulas have been developed, using hard synthetic resins with softer and slower-drying oils which have been found adequate for many purposes. Oiticica oil from Brazil has been imported in quantity and has helped the situation. Synthetic drying oil made from castor oil has been found to be suitable for many formulas previously using tung oil. While none of these developments actually duplicates tung oil, they have helped bridge the gap and give a protection against runaway markets in this commodity.

What may prove significant is the growth of American tung oil plantations. Many thousands of acres have been planted in Florida, Georgia, Alabama and Mississippi. These are now beginning to bear fruit, and a crop of around 10,000,000-lbs. of oil is expected to be harvested this year. It is quite possible that in a few years the increasing domestic production, together with synthetic substitutes, will fill all of our requirements.

Like the Auto Industry where Ross Oil or Gas Fired Air Heated Ovens and Dryers have achieved remarkable efficiency and substantial economies for a variety of processing operations. If your product involves heating, baking, drying, surface finishing, or handling, it will pay you to consider the use of AIR at any temperature up to 1000°—to improve quality, insure safety, provide flexibility, and maintain control. Mail the coupon for literature.

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American tung oil has been found superior, in many respects, to the imported type and, with proper governmental production against dumping it can supply an invaluable backlog at a stabilized and fair price.

More Finishing Materials in Demand

The paint, varnish and lacquer industry is affected also by the requirements of defense industry for finishing materials. The billions of dollars appropriated for airplanes, tanks, trucks, bombs, shells, and the myriad other products required for our increased army, navy and airforce, are going to require very large quantities of paints, varnishes and lacquers. While the industry is fully capable of handling these requirements in its stride, it is quite possible that delivery time on domestic orders may have to be extended by companies heavily engaged in defense orders. If any shortages of raw materials develop the demands of defense will, of course, have to be met first.

The governmental specifications for most of these materials have been worked out in great detail but, as is unavoidable under the conditions, they do not take into account the rapid development of new raw materials. It is to be hoped that this will be done as soon as possible and that standards of performance rather than composition be set, as this would permit greater latitude on the part of the maker in using available raw materials and thus stave off potential shortages.

Summary of What to Expect

Summarizing the effect of war and the national defense program on the paint, varnish and lacquer industry, we note an expanded demand due to the requirements of the latter, not only for finishing actual munitions and ordnance, but for painting forts, cantonments, hangars, etc. In addition, expanded payrolls have so far permitted an expansion of buying of cars, radios, furniture and appliances of all kinds, all of which require some finish.

There is a possibility of difficulty in securing certain imported materials, and also a probability of the diversion of certain essential materials to munitions work instead of finish-manufacturing. On the other side, we have a brilliant scientific work in synthesizing and growing products to replace the possible shortages. Most of all, there is a determination throughout industry to avoid the sky-rocketing markets of 1917 to 1919 and, as far as is humanly possible, to keep operations at a normal pace and prices as close to normal as conditions will permit.

Metal Cleaning Book Free

An interesting, illustrated, 32-page booklet outlining formulas and methods for cleaning many different metals and alloys before finishing or electroplating, has been issued by Oakite Products, Inc., 57 Thames St., New York, N. Y. It describes new and improved methods for safely cleaning aluminum, magnesium and their alloys; anodizing or various other surface treatments used in connection with them; cleaning polished steel without presoaking or subsequent wiping or brushing operations; cleaning buffed brass, bronze and other copper alloys; cleaning iron and steel castings, zinc and zinc base alloy die castings, cold-rolled steel, antimonial lead die castings and tin alloys.

Considerable data is also included on such other operations as tumbling and burnishing, etching aluminum, reclaiming rusted parts, cleaning before pickling and eliminating stains on finished work. Supplementing all this information are many helpful hints on tank installations and other factors which, beyond use of the proper cleaning material, may largely govern results and costs.

Presenting

A review of new and improved materials for the production of protective and decorative coats on manufactured goods; also materials for conditioning the surfaces to be coated.

Review of

Photographs for illustrations supplied through courtesy of Ault & Wiborg Corporation.

An industrial finish for modern washing machines, refrigerators and coolers must resist deterioration from humidity and moisture. In this humidity chest, industrial finish samples (or panels) are tested for this characteristic.

DEVELOPMENTS of the past year have been noteworthy, not only for revolutionary new finishes, but for the great improvements in synthetic materials for metal, wood, and plastics. Improved resins have made possible the use of extremely durable finishes on a wider range of products. Excellent coatings are now so low in application cost that there is no legitimate reason for not using satisfactory materials.

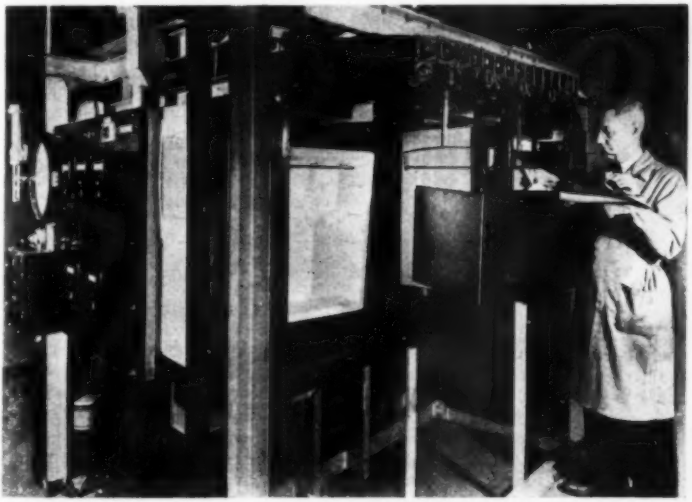
One-coat finishes that were dreamed of a few years ago are now in everyday use and are more attractive and mar-resistant than many of the 2-coat and 3-coat finishes of former years.

After any great development period, there follows one of refinement—one in which the advantages are stabilized and the disadvantages are either eliminated or minimized. We are in that period now, where minor new developments in the manufacture of synthetic resins are lengthening the durability factor, combining excellent chemical resistance, and giving adhesion to difficult materials under really adverse conditions.

New Finishing Materials

Outstanding is the continued improvement in white baking enamels. The introduction in 1939 of urea-formaldehyde resins made possible the production of dazzling white enamels—enamels of whiteness never before approached. This particular quality was accompanied by excellent adhesion, flexibility, heat resistance, non-yellowing characteristics, and the ability to withstand contact with all kinds of chemicals and food products.

These enamels were a boon to manufacturers of kitchen cabinets, electrical accessories and other important metal products, but they had a disadvantage for some establishments in that they required a high temperature bake (10 to 20 minutes at 300° to 350° F.). The bake was desirably short, but the temperature was so high that some companies could not attain



Laboratory model of conveyor oven wherein metal finishes are baked for test runs.

it with their present equipment. This year has seen the development of enamels having all of these marvelous qualities, but with a short low-temperature bake of 20 minutes at 200° F. Previous urea-formaldehyde enamels required at least 275° F. to properly bake them.

The most important thing to remember about these enamels is that heat is required to develop their better qualities. The general development is so broad that specialized products are available for many severe applications, with baking times as short as one minute and up to 30 minutes, and baking temperatures from 200° to 450° F.

Lacquers are changing in utility; that is, they have improved adhesion, higher solids at low viscosities, better gloss and chemical resistance—all refinements due principally to improvements in synthetic resin development.

Although the principle of applying lacquer of high viscosity when hot is sound, progress in the use of this material was slow during the past year. Technical considerations are still holding up its more general application.

The year 1940 has seen a rapid increase in the use of tough mar-resistant wood lacquers. Self-lifting has been overcome; rubbing has been improved; and clarity and smoothness are satisfactory. On hard, close-grained woods, these lacquers may be used without sealer to get the toughest finish. Use of a shellac or shellac-mixing lacquer sealer will give an almost equally tough finish . . . These lacquers have proved advantageous to both manufacturer and consumer—to the consumer on account of their exceptional wearing qualities and resistance to all kinds of household abuse, and to the manufacturer because of their print-resistance and excellent build, thus eliminating damage and giving more full lustrous finishes.

One of our correspondents declares that varnishes and lacquers are still leading the field as finish coatings but, with furniture factories installing ovens and conveyor systems, more varnishes and synthetics will be used, due to the fact that they are cheaper than lacquers and cover more surface per gallon.

The National Defense Program is going to have a marked effect upon the development and consumption of certain types of finishing materials. Industrial finishes play an important part in national defense. They are needed, especially, for the following purposes.

1) To provide protection. Modern finishes have excellent resistance to the destructive effects of atmospheric elements and commonly used chemicals, and prolong the useful life of metal and wood products many months, thus reducing normal wastage.

2) To render equipment inconspicuous. Lacquers and enamels are used not only for actual camouflage but also for suppressing the glint of metal and the gleam of polished surfaces.

3) To earmark equipment. Color is widely used for identifying the different types of shells, bombs, and other material.

Manufacturers of industrial finishing materials have been called upon to supply large quantities of finishes of various types for these and other defense purposes, and there is every reason to believe that the National Defense demands for 1941 will be much greater.

The use of modern high-speed finishes that dry rapidly is important because it shortens production schedules and permits full use of modern high-speed mass-produc-

tion methods. Wrinkle finishes, which were developed since the last war, should also be used widely on military equipment, because these finishes can be applied in a single coat on roughly finished metal surfaces. They form tough durable coatings, and do not reflect the light. New specifications will permit the use of these finishes.

In 1941 we shall see an increased demand for the services of "Color Stylists". Paint today is more than a protective coating. It is beginning to be used for the expression of product functions. We all have noticed the 2-tone trend on automobiles and airplanes. Much can be accomplished on other products. Finishing material manufacturers who appreciate the possibilities of product styling with harmoniously combined colors, are improving their sales considerably. Often, intelligently planned color styling can be the means of eliminating expensive forming and shaping of metal and wood details, and give an ultra-smart streamlined effect to the product, at less cost to the manufacturer.

In general, industrial finishing is rapidly becoming a very strict specialty business, with a different formula to suit each customer's conditions and demands. We may look forward, during 1941, to better finishes, better customer satisfaction, and more products to finish, hence better business.

Our company has developed a one-coat high-gloss baking synthetic white for the refrigerator and washing-machine trade. This coating does not need a primer coat. It is baked in 15 minutes at 325° F. This is a very tough durable alkali-proof urea-formaldehyde finish.—200.

New materials are grouped in the following five classifications:

Bake Finishes.....start page 41
Air-Drying Metal Finishes..... 48
Furniture Finishes 54
Finishes for Plastics..... 66
Miscellaneous 70

Notice the identification number following each listed item. When you write for further information about any of the products, please refer to the code number. — Ed.

Acknowledgment by the Editor: Material for the introductory paragraphs to this Major Review Article was supplied by J. H. Grady, Russell Davis, G. Klinkenstein, N. H. Voigt and Harry Daniels.

Modern Bake Finishes

The bake finishes listed here consist chiefly of coatings for metal—coatings that require curing temperatures of 175° to 450°F., either in a closed insulated oven or by close exposure to banks of infrared electric lamps. The baked finish is noted for hardness and toughness of film, its durability, color retention, and general resistance to practically everything that is continually at work striving to break down the film.

Washing Machine Primer—Bakes in 30 minutes at 300°F.; for use under white enamel; contains zinc chromate pigment to increase rust resistance. —145.

Albarox — A white finish that air dries or can be baked in as short a time as ½ hour at temperatures ranging anywhere from 250 to 300°F. Extensive laboratory tests and service in the field has shown that Albarox retains its pure white color when ex-

The rearmament program is causing a general speeding up of production schedules. This means elimination of the bottle neck caused by so many finishing procedures. Since Uncle Sam demands the best in the way of quality, many manufacturers are installing new, or modernizing present, baking equipment. This is increasing the use of baking synthetics. With them, it is often possible to eliminate one or more coats and at the same time improve the quality of the finish.

In this connection, it is our experience that many U. S. Government specifications date back to the World War and, in at least one case that was brought to our attention, to the Civil War. The alert user and manufacturer of finishing materials will not just accept such specifications, but will contact the proper bureau in Washington, D. C., and have them brought up-to-date.—R. J. Burns.

posed to temperatures as high as 325°F. and more for continuous, long periods of time, without any dulling of its sparkling luster.

Albarox in an air-drying state has good adhesion and toughness on all the common metals, such as brass, aluminum, steel and die castings and these qualities are enhanced when it is baked so that even on bright chrome it sticks well.—235.

Short-Bake Snow-White Synthetic Enamels—Adjustable baking schedule of 180° to 500°F., 10 to 45 minutes. A white finish that will withstand temperatures as high as 500°F. for 15 hours. May be thinned 25%. Especially suitable for metal cabinet work, stoves, kitchen utensils, etc.—133.

Porcenite — A one-coat baking enamel that looks like porcelain, wears like porcelain and feels like porcelain. Great improvements have been made in its water, alkali and acid resistance. Can be supplied in white, black and colors. Baking schedule varies from one minute at 500°F. to 45 minutes at 275°F., but may be constructed to meet any baking schedule.—222.

Vitra-Carlite White No. 350—A synthetic product which bakes at 350°F. and gives a tough, hard, glossy, marproof film. While the regular Vitra Carlite White is satisfactory when baked up to 300°F. for 20 minutes, this new No. 350 will stand baking up to 350°F. and will hold its color and luster at that temperature. The No. 350 needs no undercoat. Reduce 3 parts of No. 350 to one part V. C. reducer for spraying, dipping, or brushing. For spraying, first apply a mist coat, and immediately thereafter a medium coat. Bake at 300° to 350°F. for 20 minutes. —250.

Synthetic Whites—Stand extraordinary tests; can be baked in infra-red ovens or conventional equipment. These whites are particularly suitable for use on reflectors, stoves, beverage coolers, ironers and water coolers. —241.

High Heat-Resisting White—Recently developed and designed as a coating for metal objects which, in use, are subjected to temperatures of 400° to 500°F. This material holds its color as well as its life at these high temperatures. Applied by roller coating or spray, and is a baking type material. For best results the manufacturer recommends a baking schedule of 325°F., for approximately 20 minutes.—120.

B. T. L. Enamels—Formulated to give the manufacturer of metal products a material nearly foolproof as possible, with maximum resistance to chemical wear and resistance to abrasion and normal wear. Will withstand long periods of heat without discoloration under the most severe exposure.

For finishing steel, we recommend

that the steel be cleaned in a vapor degreaser or washed with solvent naphtha or V. M. & P. naphtha.

If gas, oil-fired, or steam ovens are used, we recommend the use of our 59-B Primer to be baked at 300° to 325°F. for one hour or longer This reduces with thinner at the ratio of one part thinner to four parts of material. Under infra-red bake we recommend our No. 418 Primer which may be baked at approximately 300°F. for 12 minutes. If the material is sprayed from a pressure container, we recommend a pressure of 8 to 12-lbs., with pressure at the gun of 75 to 80-lbs.; for gravity-feed spraying we suggest using 65 to 75-lbs. at the gun. —238.

Kem Appliance "A" Quality White—A new basic formulation for refrigerators, kitchen cabinets and washing machines, which features superior hardness and resistance to spot tests. Also available in a good range of industrial colors.—168.

Codur Stove Enamels—A line of white, porcelain white, and colored enamels for use on stoves. Withstand high temperatures for many hours without objectionable discoloration; resistant to marring, hot grease, and kerosene.—157.

Luxkote Baking Enamels—Furnished in all colors, including white. Use of the latest developments in synthetic resins make these products outstanding. Designed for either exterior or interior use. Baking schedules cover a wide range—from 6 minutes at 350°F. to 40 minutes at 200°F.—105.

A New White Enamel—Improvements in white enamels have been made regularly for years past and the year 1940 was no exception. During this year a white enamel was developed that has excellent color retention under high heat and is resistant to hot oil, grease, etc. Its special field of usefulness is on stoves. —198.

Photograph, courtesy Sherwin-Williams Co.

New Improved Baking Finishes—For imitation wall tiles. Made in white, pastel shades, dark colors, and black. All colors are absolutely fast to light, resistant to soap, and other cleansing agents.—231.

V102 Pale Tin Finishing Varnish—A new roller coating varnish for either conveyor or box-type oven, which combines the much sought for qualities of paleness, gloss and price, plus good fabrication The excellent film tends to greatly overcome absorption difficulties encountered with certain inks which heretofore have required two coats of varnish to achieve a uniform gloss finish. This varnish in production has shown a mileage increase up to 15%.—232.

Polymerin-100—Is included in a newly developed line of low-bake finishes designed especially for use with infra-red baking equipment. It has been used extensively for some time with infra-red systems, where it is reported

to cure rapidly, providing a hard, flexible and durable film. Formulations that have been developed include both undercoats—primers and primer surfacers—and topcoats in a full range of plain colors, with no limitation as to luster. A hammered effect and wrinkle finishes are also available. These finishes enable manufacturers to benefit by the time- and space-saving advantages of infra-red applications and yet maintain satisfactory characteristics of hardness, flexibility, durability and adhesion.

Speed schedules made possible with Polymerin have, in some cases, been reduced even further by utilizing infra-red baking equipment. A storage file, for example, which will ordinarily bake for 15 minutes at 300°F. with Polymerin, is being baked in an infra-red lamp setup in five minutes. The speed-up made possible by specially designed finishes used in a large automobile plant resulted in a 30% saving in light costs. Polymerin infra-red finishes are being used successfully in a variety of industries—on household appliances, automotive parts, bicycles, cabinets, enclosures, and many other types of products.—196.

Luxkote Olive Green Dipping & Spraying Enamels—Synthetic-type enamels which have been proved in production. Baking schedules vary from 15 minutes at 325°F. to one hour at 250°F. The finished film has unusual depth, is tough with good adhesion, and is unusually marproof. Will take subsequent coats of the same material and have good co-adhesion.

Special Finishes for Infra-red Baking—While many of the older types of finishes can be baked by the infra-red process, better results are obtained by using finishes developed especially for the use of this process. During the year, several lines of special "infra-red" enamels were developed. The chief feature of these new finishes is that they cure very rapidly under the impact of the infra-red rays.—197.

These dipping enamels have good stability in the tank and will not body up. Reduce 75% with petroleum spirits for dipping. The bead is flat and unusually hard. Ideal for use on lockers, shelving, and as a prime coat for all types of metal furniture.

The spraying enamels reduce 25% with petroleum spirits for spraying, level out exceptionally well, have good depth, and good marproofness.—103.

Foto Grain Finishes—Improved photographic wood reproductions for furniture. Multiple figure designs, including marquetry, may be applied in one quick operation over the ground coat. —169.

S-W Cabinet White "C"—Specially designed for the manufacturers of utility cabinets. "C" White provides splendid film qualities and color retention, with an unusually low unit cost. —170.

S-W Spray Grain Finishes—Provide high gloss and show an excellent appearance without necessity of applying finishing coat of varnish. Increases film quality at lower finishing cost.—171.

Rubber Finish Baking FloBake-Formula No. Y730—Excellent adhesion to brass and die-cast metal. Hard, tough, perspiration resistant. This material is suitable for mechanical pencils, etc.—229.

Roxaprene (chlorinated rubber base) Finishes—So fast setting that films are out of dust in lacquer time; dry enough to tape in six hours. Air-dry synthetic production schedules are greatly shortened. So versatile that the same enamels air-dry or bake (one hour at 180°F. or 30 minutes at 250°F. are typical schedules). So flexible that they may be drawn and formed into bottle and jar caps. So permanent in adhesion that films over two years old may be bent double without cracking. So free flowing that they roller-coat and dip without silking or sagging. So alcohol resistant that 24 hours' immersion in pure spirits will not soften the film. So salt-spray resistant that films

Photograph, courtesy Ault & Wiborg Corp.

have withstood 6,000 hours' continuous exposure to 5% calcium chloride spray. So chemical resistant that special formulations withstand constant immersion in, and exposure to, continuous spray of corrosive liquids for 600 hours without failure. So alkali-resistant that they eliminate "burning" or blistering when applied over alkaline surfaces.—233.

"115" Synthetic Enamel—An elastic one-coat bake finish in all colors. Has remarkable adhesion; sticks to thin sheets of bare metal so well that close cross-hatch knife cuts show clean without any trace of chipping or flaking. Coated sheet metal also withstands repeated bending, twisting and hammering without separating the enamel from the metal or showing signs of flaking.—185.

Duranite S-412—A heat-resistant finish with a two-fold advantage; it stands high heat in use and it is not so sensitive to color change or gloss-lowering in baking. Is particularly desirable in white color. Bakes on a fast schedule. Is highly recommended for lamp reflectors, stoves, water heaters and other items where more than normal heat is encountered. In addition to its heat resistant values, S-412 shares the Duranite family characteristics of excellent adhesion, speed in application, toughness and durability. —182.

Duranite S-413 (Burn Resistant)—Gives remarkable heat-resistance without loss of other qualities. Is water white in color. Has excellent adhesion, high resistance to abrasion and inhibits spotting out. May be baked 15 to 20 minutes at 275°F., and is used on brass, bronze, copper and other metals.—183.

Vitra-Carlite Clear No. 350—An excellent protective finish for polished metal surfaces, bright metal surfaces, polishel steel and aluminum. For aluminum reflectors, which are subject to much heat and outside exposure, this finish is an efficient protector.—251.

Coatings for Metal Lithography—The result of research by the company's laboratories, in cooperation with several companies doing such work. Each finish and each vehicle has been tested and all are in regular

Infra-red Baking—The use of the infra-red baking process, in which the heat radiated by electric lamps is employed, spread rapidly during the year. The advantages and limitations of this process are now well understood. It is especially useful in mass-production work where pieces of the same shape and size are being turned out, but it is not suitable for handling products that vary greatly in physical dimensions. It is a most useful addition to the facilities for industrial finishing, but it will not supercede all other baking processes.—G. K.

The use of infra-red for industrial baking started several years ago, but until recently, infra-red has not been widely utilized because of a general lack of knowledge of its use. Today its application in finishing is spreading rapidly. There is a growing understanding of the efficient utilization of infra-red baking principles. Where it is being successfully used, it has, say its proponents, speeded up baking, thus lowering costs. Other merits claimed for infra-red baking are lower capital investment in ovens, increased flexibility in use, and large savings in floor space because of the increased speed of drying operations. It is important for manufacturers considering installing infra-red equipment in their plants to investigate thoroughly the various aspects of this baking method.—A. & W.

use in the industry. They are intended for application by roller coating and to meet baking conditions of 240° to 250°F. in 12 to 22 minutes, or of 275° to 285°F. in 8 to 12 minutes. They adhere well to lithographic undercoats, inks, size, tin and sheet metal. They are elastic to stand drawing.

There are other coatings for metal lithography which stand up under special tests for particular conditions and take the high temperature bakes usually necessary to meet the many unusual purposes; these, this comany is prepared to furnish where conditions require.—252.

Duranite S-437 (New Low Bake)—A new formulation using the recently developed Melamine resin base. It has several outstanding merits. Bakes at lower temperatures and in shorter time. Permits baking schedules as low as 200°F. for short periods. Work comes out of the oven hard and ready to use. The finish is white in color, has a high gloss, excellent adhesion, is tough and durable, offers excellent mar resistance. It works well on a wide variety of metal surfaces—such as lighting fixtures, towel cabinets, scales, toys, name plates, clocks, thermometers and hardware.—181.

Lite-Granit—A new marproof hammered effect finish designed for use on rough and porous metals. The surface is smooth, although appearing to be rough, therefore it does not attract dust. Has a flexible baking schedule. Ease of application and uniform results make it attractive from a production standpoint. Particularly adaptable for use in finishing furnace jackets, vacuum cleaners, tool kits, and similar articles where beauty at a low cost is desired.—101.

Kem Hammer-Type Finish—Produces unusual beauty at reasonable cost and with foolproof application features.—172.

Infraline—A new line of synthetic enamel, available in many colors, for special adaptation where infra-red baking is employed or is indicated. Infraline bakes hard in quick time, producing a tough, durable finish that is dependable and adaptable to a wide variety of conditions and products. —266.

Raydur Enamels for Infra-red Baking—High gloss, semi-gloss, and wrinkle synthetic baking enamels especially developed for infra-red baking. They bake under adequate infra-red heat in 3 to 20 minutes and can be handled for assembly a half-hour later. —155.

Infra-Red Baking Enamels—All colors to bake in from 2 to 6 minutes. —240.

Formaroc Enamels—Highly perfected heat-converting enamels for both infra-red and oven baking. Hard, tough, adherent and brilliant finishes. —214.

Vitra-Carlite Hammerkraft—A pleasing durable finish for jackets of air conditioners, circulatory heaters,

coal and oil furnaces, hot-water heaters, office equipment, vending machines and many other metal products. An economical finish which gives beauty of appearance and long wear. It may also be used on wood and other porous surfaces that have been sealed. Has excellent adhesion, heat-resistance and durability; a high-gloss synthetic coating. Hammerkraft hides imperfections in the metal. It is a smooth finish which can be readily cleaned. The hammered metal effect is easily obtained; it requires two spray operations but only one baking —300°F. for 20 minutes. The size of the hammered effect is controlled by adjusting the opening of the spatter nozzle on the spray gun, so as to get a light or heavy spatter. A light spatter gives a fine hammered appearance, while a heavy spatter gives a larger figure.—249.

Yarnall Wrinkle Finish—The manufacturer says: "This product has performed many jobs for metal finishers with highly satisfactory results, due to the fact that we have been able to control the texture of the wrinkle at various degrees of sheen and in many colors. The product has definitely proved itself as being absolutely dependable."—142.

Wrinkles—New, improved, foolproof. Bake to a hard, tough, and wear-resistant film. Made in all shades from light to pastel to black.—230.

Five-Pattern Wrinkle—A further refinement of wrinkle enamel; stocked in black and available in colors.—147.

Vitra-Carlite Spatter Finish—A beautiful, pleasing, sales-appealing finish that gives a rich speckled effect in two colors. Especially suitable for use on air conditioning units, circulatory heaters, elevator cabs, stove shells, and many other metal objects. May be used on wood and other porous surfaces which have been sealed. Has excellent adhesion, heat resistance and durability; a high-gloss synthetic coating.

The first coat is one of solid color and complete coverage. The second is a metallic spatter, sprayed on while the first coat is still wet (within 15 minutes) and applied with a spatter nozzle attached to the spray gun. Baking time, at 300°F., is 20 minutes. —248.

Rincontrol—A one-coat textured-enamel finish made under New Wrinkle, Inc. licenses. Embodies a number of new and distinctive features; has good adhesion; permits finished parts to be handled in bulk without chipping or flaking; is sufficiently flexible to permit mild forming. It withstands salt spray and humidity. Every batch works the same. It dries uniformly at various temperatures. You can bake it in 45 minutes at 250°F. It can be used on sheet steel, die castings, aluminum, and even on wood. It resists abrasion, marring, perspiration.—234.

Veltex-41—A standardized line of wrinkle finishes improved and perfected to give the user faster and easier spraying. Greatest possible mileage and economy, and consistently

Photograph, courtesy Tousey Varnish Co.

uniform results with a consequent minimum loss from rejection, are the pertinent features of "Veltex-41." This wrinkle is supplied in a large variety of colors, with varying gloss and texture, to meet all conditions and special requirements. "Veltex-41" is readily adaptable to infra-red baking schedules, and is noted for its tenacity and durability.—262.

Air-Drying Metal Finishes

Lacquers, synthetics and other types of material are included in this group; primers, top coats and one-coat finishes in colors and clears for interior and exterior exposure. They are chiefly noted for such characteristics as excellent adhesion, smooth flowing, lasting flexibility, full coverage, permanent color retention and remarkable durability. Some of these air-drying finishes can also be baked, thus making the film harder and therefore more resistant to certain types of severe service.

Luxkote Zinc Chromate Primer—Here is a foolproof zinc chromate primer that will not jell or settle in the package. Reduces 100% for spraying with toluol; air dries to handle within 15 minutes, and overnight for recoating with synthetic enamels or lacquer. Can also be baked.—104.

Gray Casket Primer No. 5352—The metal should be thoroughly clean, free from oil, grease or dirt. Use No. 5352 Gray Casket Primer for the priming coat. Reduce approximately 30% to 50% with No. 2525 lacquer thinner before applying. This primer is on a lacquer base, will fill the surface and build up a solid undercoat. It gives the necessary adhesion and elasticity for a good foundation.

The manufacturer recommends that the priming coat be put on with what is termed a continuous spray application, going around the casket until there is a heavy primer coat complete over the entire surface. This takes care of irregularities in the metal, and will lay up enough material to prevent sanding through The priming coat will be ready for sanding in an hour and should be sanded smooth with No. 5/0 or 6/0 sandpaper. Succeeding applications will depend on the type of finish desired.—108.

Chromate Sanding Primer—For steel doors and partitions. Combines the rust-inhibiting properties of zinc chromate pigment with filling primer.—144.

S-310 Rust Inhibitive—A very pale, quick-drying and tough finish, remarkably resistant to dampness and other rust-causing influences. Takes high reduction and can be dipped or sprayed. Ideal for protecting bright metal parts such as hatchet and axe blades, saws, hardware, machine tool parts, etc.—213.

Steel Sash Dipping Primer — Heavy bodied; reduces 50% for dip application; 75% to 100% for spray application; no appreciable settling in dip tank; complete one-coat coverage, both on edges and flat work; excellent draining; dries to permit bundling and shipping sash the same day.—143.

Infra-Red Baking—It is important to remember that enthusiasm for infra-red's quick baking schedules must not cause us to overlook many other factors. We have found that some finishes which bake out satisfactorily in conventional ovens are not suitable for infra-red baking. Color of the finish to be applied, type of surface, shape of the object, production schedules, and other considerations influence the results obtained. No single material or method of set-up will work in all cases. Users of industrial finishes interested in the infra-red process should work closely with the finish manufacturer as well as the maker of the equipment.—Zapon.

View in modern plant where finishing materials are manufactured and prepared for shipment to various industrial establishments. Photo, courtesy of Tousey Varnish Co.

Luxkote No. 585 Red Lead & No. 542 Blue Lead—Outstanding synthetic prime coats developed to take the place of slow-drying red lead and blue lead ground in oil. Reduce 100% for spraying with toluol or similar reducer, and reduce 50% for brushing with mineral spirits. Air dries to handle in one-half hour, to recoat in two to four hours.—102.

Coprene Air-Drying Synthetic Enamels—A new line of air-drying chlorinated-rubber-base enamels, which dry dust-free in a very few minutes and so hard overnight, under normal application conditions, that they can be freely handled and will not "paper print." The adhesion and outdoor weather resistance are good, and flexibility improves with age. For use on all kinds of metal products, and also on wood with a surfacer to provide a smooth finish, or without one to show grain.—161.

Franzite—A synthetic type of finish; gives good hiding and high gloss in one coat; air dries hard overnight; sets in 20 minutes and dries to touch in 45 minutes; is relatively elastic and has good adhesion to wood, steel and many other surfaces. Colors retain their shade well with age; has good outside durability; resistant to gasoline, mineral spirits, machine oil, grease, liquor, hair tonics, cosmetics and fruit juices.—247.

Crystal Lacquer—A new air-dry lacquer producing the crystal finish sought for scientific instruments and other metallic articles. May be used in an open shop, even in presence of drafts. Available in clear, all pigments and dye colors.—148.

Air-Dry Hammerene — Dries dust-free in 30 minutes and can be handled in 60 minutes, under usual conditions. Produces a brilliant luster and a beautiful hammered silver effect, or may be utilized to produce a smooth metal luster appearance. A. D. Hammerene is single coated to base metal to produce fine adhesion, toughness and extreme durability under exterior exposure. Depth and fullness is highly

Large quantities of acid-resisting varnishes are being used to coat the insides of shells and bombs, to prevent the explosive from coming into contact with the metal of the ammunition case. This type of material must be free from lead salts and other metallic compounds to prevent the explosive from deteriorating with age. Many different colors of quick-drying synthetic enamels are being used on the outside of the shells and bombs to identify their size, the nature of the explosive used, etc.—M. J. P.

emphasized. Improved chlorinated alkyd-type synthetic for a large variety of uses, wherein speed, appearance and economy is indicated. This new product is meeting with enthusiastic reception and is now in production at a number of plants.—263.

Hammertone Novelty Finish—A new finish, called "Hammertone," that closely resembles beaten metal. Supplied in copper, bronze, silver and other ornamental metallic colors for use in finishing a wide variety of products made of metal and Bakelite.—156.

One-Coat Hammer Finish—A hammer finish that is applied like a regular enamel. It requires one spray application only. No spattering with thinner. It may be baked or air dried. —166.

Hammered Metal Finish—A one-coat air-dry enamel supplied in silver and copper colors. Also supplied in a baking type which hardens rapidly. —150.

Metal Gloss Buffing Lacquer No. R-23—A high-solids low-viscosity gloss buffing lacquer for use directly to metal or over bronze or colored lacquers. This top coat is perfectly clear and will not turn yellow or cause discoloration over light-colored enamels or aluminum. It can be sprayed as prepared, for an extremely full-flowing coat in a continuous spray application. If more than one coat is applied, it is recommended that the first coat be reduced 20 percent. Best results are obtained when the lacquer is buffed after drying 18 hours.—112.

Cel-u-Lak Tool Lacquer Enamels—Specially designed for coloring and protecting aluminum and diecast-metal pneumatic tools, such as riveting hammers and drills. Long and successfully used. All colors available. —215.

Hammered Metal Lacquer—Obtainable in a variety of deep, glowing colors. Accurate formulation and production control permits the exact reproduction of any finish pattern at any time.—136.

Flame-Proof Clear Lacquer—Designed for ash trays; resists cigarette burns and withstands rough usage. The peel-proof film provides excellent metal protection and resistance to abrasion.—137.

Flexible Lacquers—A line which will adhere excellently to tin and lead alloys in sheet form, such as caps for beverage bottles. Supplied in a full range of colors including aniline colors, gloss pigments and dull pigments. —153.

M M Paste Form Metallic Finish—For use with bronzing lacquers in a manner similar to the conventional bronze powders. According to the manufacturer, films sprayed with this product are far superior to films made with the usual dry bronze powders. Improved adhesion, better gloss, and good covering are features of films in

Besides furnishing finishing materials, it is highly probable that industrial finishing manufacturers will also be called upon to do other kinds of work for the government because of their wide experience in a highly specialized field of organic chemistry.—G. K.

Casket lacquers that are pre-mixed are rapidly coming into wider usage, due to the fact that there is no jelling and very little settling—as there is with powder-mixed lacquers. Waste is greatly reduced.

Acid-spotting, a trouble that has spoiled the appearance of many copper and gold finished caskets, is also reduced to a minimum.

These lacquers work best when "misted" on, without letting the film get very wet. Available in all colors, they present a smooth pleasing luster without top-coat lacquer, and a deep, lasting finish when lacquered and polished.—Al. Matlock.

which this new bronze paste is incorporated. A substantial saving is effected by its use since less top-coat lacquer is needed to get the desired gloss.

The paste is made in all the standard bronze powder shades, as well as many new hues which heretofore have not been offered. The bronze paste is especially helpful to finishers who have been blending colored lacquers with bronze powders to get colors which cannot be made with the dry bronze powders. The use of the paste eliminates the mixing of colored lacquers and dry bronze powders to get desired shades, as it is merely mixed with the clear lacquer. Accordingly finishers are not troubled with color discrepancies.

A one-coat high gloss finish can be made by mixing the paste with a high gloss lacquer.—188.

Jewelry Lacquer—A clear lacquer of improved resistance to perspiration. —146.

Perspiration-Proof Lacquer—A new type of clear lacquer especially suitable for finishing articles frequently handled, such as flashlamps, pencils, compacts, lip-stick holders, etc. It resists the corrosive action of perspiration and protects metal surfaces or enamel color coats.—158.

High-Speed Grain Finish—A finishing schedule for the rapid application of wood grain on metals. It consists of a quick-drying Durad Speed Primer, which receives the graining ink, and a top coat of air-drying or quick-baking clear lacquer.—159.

Perspiration-Proof Lacquer — Made in two types—baking and air dry—for outstanding perspiration resistance. A rugged, water-white finish for all types of metal.—134.

M M Ready-Mixed Metallic Finish—Dries with the speed of lacquer, can be brushed, dipped or sprayed. In many industries it has proven to be an ideal metallic metal finishing product. It is stable in the can, and shows no color change over a period of a year. Available in any of the standard bronze powder shades.—189.

Photograph, courtesy Ault & Wiborg Corp.

In 1910, 15 m.

Now, with the new DULUX, you can reduce a 29-hour finishing schedule to 7½ hours from sealer to packer!

THE new Du Pont DULUX finish for furniture means great savings in time and money on finishing schedules.

1. Made to dry quickly, at elevated temperatures—as low as 1½ hours at 140° F. —DULUX offers you a 5½ to 7½-hour finishing schedule from sealer to packer . . . as compared to the usual 29 to 43-hour schedule for varnish, and the 22 to 28-hour schedule for lacquer. DULUX also saves time because it's easy to rub.

2. The unusual build of DULUX means that you need only one coat, instead of the two coats usual with lacquer. Material savings up to 30% are possible.

With these two *different* advantages, DULUX makes possible a faster production line than ever before. You'll like the character of DULUX, too. It has a clear, bright film with excellent depth of appearance. It has the resistance to cold cracking, scratching, printing, marring, water and alcohol you expect from high quality lacquer.

In fact, DULUX is a finish that combines the flow and build of varnish and the speed and quality of lacquer.

If you are interested in streamlining

DU PONT

DULUX

FULFILLING AGAIN THE DU PONT PLEDGE OF BETTER THINGS

, 15 m.p.h. was "burning up the road"...

NOW CARS GO 3 TIMES AS FAST IN SECOND GEAR!

our production line, investigate ULUX—the finish that again fulfills he Du Pont pledge: "Better Things for Better Living . . . through Chemistry." or full information, write E. I. du Pont e Nemours & Co. (Inc.), Finishes Div., Wilmington, Delaware.

ntages, roduc- 'll like has a depth nce to nting, expect

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lining

LUX FOR FURNITURE

ETTER THINGS FOR BETTER LIVING THROUGH CHEMISTRY

Furniture Finishes

"Manufacturers of furniture finishing materials have made great progress during the past year, both in the development of new materials and in the improvement of other materials. Part of this is due to the demand of furniture manufacturers for materials that can be used on modern conveyor systems, which call for faster accelerated finishing schedules.

"The old type overnight-dry fillers have, in many instances, been replaced by synthetic fillers that will dry in as short a time as one hour at 140° to 150° F. After the filled surfaces cool for 30 to 40 minutes they are finished in the regular way. The remarkable thing about these fillers is that, if they are properly formulated, they give better results as to filling, nonshrinking and drying, etc., than the old-type fillers.

Eighteenth Century as well as modern and French designs were executed in "limed oak" at the recent fall national home furnishings show at the American Furniture Mart. This modernized 18th Century dresser is part of a complete bedroom group following Hepplewhite lines. Hardware, polished brass.

"Synthetic top coatings have been greatly improved upon during the past year. This is especially true of the urea-formaldehyde type of varnish. Some of these coatings can be baked for 1½ hours at 150° F. (with 35% relative humidity) then cooled for 30 minutes to one hour (depending upon the cooling system) and then rubbed, polished and crated ready for shipment. The finish is durable and resistant to heat and alcohol.

"A new bleaching stain, which is a combination stain and wash coat, has recently come on the market. This stain, finishers say, gives a good bleached effect on both walnut and mahogany. It is applied directly over the wood; then sanded, filled and finished in the regular way.

"Uniforming enamels have been improved upon during the past year and these will probably be more widely used during the coming year, due to the great increase in the cost of furniture lumber. The uniforming enamel can be sprayed on the wood, then finished over in the regular way, thus removing dark streaks and allowing the manufacturer to use a cheaper grade of lumber, which is necessary in manufacturing the cheaper grades of furniture.

"Whereas it used to take from 24 to 72 hours to finish a piece of furniture and get it ready for shipping, today, with modern conveyor systems and vastly improved finishing materials, a piece of furniture can be finished and rubbed, polished and made ready to ship in 5½ hours from the time it leaves the cabinet assembly room.

"The 1941 furniture barometer forecasts unusual activity, thus making greater demands upon finishing material manufacturers for more and better materials. I think

Flat Lacquer for Furniture—For some time there has been considerable effort applied to the problem of making a flat lacquer that would retain its film properties on aging. Most rubbed-effect or flat lacquers that have been available to the wood-finishing industry, in the past, have contained a stearate soap or an incompatible waxy gum to reduce their luster. While this method has produced many excellent and highly valued finishes, it has always left something to be desired. This undesirable shortcoming, as all finishers know, is film-rotting with age. The lacquer film would eventually become cheesy and flake away. This condition is due to the flattening agent used.

Recent chemical developments have produced new tung oil soaps which actually add to the physical properties rather than detract from them. We have taken advantage of these new developments and have produced a new flat lacquer which has the quick-dry and tough-film properties of a gloss lacquer. It sands easily and becomes tougher with age.—207.

that, although the price of raw materials have greatly increased during the past year, the furniture manufacturer is getting finishing materials for less money than ever before."—H. W. C.

Blanchit — For wood bleaching to produce blond finish in furniture production. Also useful for refinishing interior building woodwork, modernizing, etc. Safe and permanent.—253.

Mahogany Stain Remover—To be used following bleaching with Blanchit on refinish work. Stops bleeding of old stains.—254.

Picklett—Wood impregnation; decolorizing. Process and materials for bleaching wood clear through — veneers, straws and fabrics.—255.

Pigment Uniforming Stains — Non-bleeding. Manufactured on a waterproof base. May be sprayed, brushed, dipped or wiped. In many instances they can be used as a complete finish on the backs or unimportant parts of wood articles.—152.

Zaponol (New Wood Stain)—A revolutionary new wood stain material which, according to the manufacturer, combines the best features of stains previously available but it has, in addition, two valuable properties heretofore unknown, namely a sealing effect and controlled penetration. The basis and secret of its effectiveness is a new synthetic resin developed and produced exclusively for this new stain.

Zaponol stain uses regular water-stain powders to produce the utmost in brilliance and light fastness of color. The coloring materials are dissolved in the water solution of the new resin to obtain the unique effects. It sizes as it stains. This remarkable sealing effect, due to the resin base, allows "controlled penetration" by which all surface fibers are uniformly stained but excessive penetration of the material is prevented. The stain is non-soluble in subsequent finishing materials and is unaffected by them, giving added brilliance to the finish. When it dries, loose fibers are firmly set on the surface. They may be removed with a light sanding. They will not rise again during subsequent operations.—187.

Improved Permanent Pigment Oil Stains—Fast to light and non-grain raising, they may be brushed, sprayed or dipped. Wiping operations are reduced to a minimum. They equalize light and dark woods perfectly, producing a rich, even tone and are especially effective on red and sap gums, poplar, cottonwood, tupelo, etc.—216.

There is a new air-drying synthetic rubbing varnish that can be rubbed in ten hours. This varnish is high in solids, averaging between 46% and 50% solids . . . developed for and fits the requirements of manufacturers of cheap and middle-class furniture and novelties.—199.

Q. D. Furniture Stain (Improved)—A new line of non-grain-raising stains which dry to re-coat in 10 to 20 minutes. The most far-reaching improvement is to make them practically 100% fast to light by the use of newly developed dye materials.—162.

Wipe-Rite Pigment Stains — Have unusual uniforming characteristics, and yet are clear and transparent. They are applied by spray or brush and then wiped clean. May be coated over after an overnight dry. These are non-fading stains.—117.

Spray-Rite Pigment Stains — Are more permanent and non-fading than the best dye-type stains, and yet have all their brilliance and transparence. Their development was made possible by new, extremely fine pigments. Apply by spray and wipe lightly.—118.

Non-Grain-Raising Stain — Probably the most outstanding development our company has made this year is the very marked improvement which has been made in our Non-Grain-Raising Stain. Although Non-Grain-Raising Stains have met with almost universal approval by the wood finishing industry, they have had several minor disadvantages such as uneven penetration and too great penetration of all soft parts of the wood. Dark stains carrying a larger amount of dye were of necessity slower drying and, in general, it was necessary to wait from one to four hours after application of the stain before applying the subsequent finishing coats. One other fault has been the precipitation of some of the color as a sludge in the bottom of the container on long standing.

Our new Fast-to-Light Stain has almost completely eliminated these faults. Its penetration is exceptionally uniform and the drying time is so short (about 20 minutes) that it is even possible to spray a coat of sealer over the stain without removing the piece from the spray booth. This stain, which does not depend upon the usual type of solvent, keeps the dye permanently in solution and will not show a sludge or settling after long standing.—223.

U. P. S. Stains—Manufactured in primary concentrates—red, yellow, orange and black—or in concentrated or ready-to-use form to match individual requirements. In concentrated form they take reductions as high as one part to eight parts or more of denatured alcohol. May be applied by brushing or spraying, or small objects may be dipped. Drying time is so quick that recoating can be done in

One of the most interesting of the new developments this year in the finishing industry is a clear synthetic baking varnish for wood. This varnish is a combination of urea-formaldehyde and alkyd synthetic resins and must be baked 1½ hours at 140 F. to obtain best results. The film, which is either high-gloss or semi-gloss, is very hard, tough and resistant to moisture and alcohol.

The wet varnish, which has about 50% solids, can be either sprayed or dipped, a special thinner being required. This system compares favorably with lacquer for speed and ease of handling and also in cost, as the solid content per gallon is about twice that of the average lacquer.

This development should prove of special interest to the furniture manufacturer who has a conveyor line and oven drying set-up.—J. W. McHugh.

A compromise between Regency and Modern is achieved in this grouping . . . part of an unusual bedroom suite featured at the recent fall national home furnishings show at the American Furniture Mart. Deep blood red or Cordovan mahogany is used. Polished brass hardware adds to the modern air. The reeded base of the small chest is repeated in the feet of the case pieces placed on graceful legs. The small chest may be used in pairs on either side of bed, as twin night stands, or in a series of sectional units.

45 to 90 minutes, depending on conditions. They contain a binder that takes light sanding, so that shellac wash coating is no imperative. Penetrate soft and hard parts of wood uniformly. In permanence they are comparable to water stains. Will not change color in the package.—186.

Keen-Kolor Stains — Industrial pigmented uniforming stain for clarity of tone. Clears up the grain. Uniforms easily. Brings out the true beauty of the wood. Lacquer-proof. Will not bleed. Will not raise the grain. Thoroughly satisfactory drying over night. Ideal for the lacquer finish. Follow with sealer. One to two coats lacquer.

In a special process to vitalize the finish, apply to the bare wood one toning coat of Ultra Perma Stain. Follow with sealer. Then glaze with one coat Keen-Kolor wiping stain for uniforming and full color tone. Gives depth to the finish. Follow with lacquer finishing coats. These stains thin with naphtha, and lighter tones can easily be worked out by the addition of reducer. Fast-drying naphtha speeds up drying and therefore affects wiping qualities. Use slow-drying naphtha for penetration and uniforming and for greatest ease and economy of labor in the wiping process.—114.

Black Shading Lacquer No. 5370—Shaded effects can be obtained over enamel or bronze coatings by using black lacquer reduced six parts thinner to one part lacquer.—113.

Non-Fading Lacquer Shading Stains—Far more permanent than the best heretofore available, these shading stains will not fade in force-dry ovens or under exposure to light. They knit perfectly into sealer and do not spoil adhesion to top coats.—119.

N G R (non-grain-raising) Stains — Equal to water stain in light fastness. No size coat necessary before filling. Especially suited for production work where speed is a factor. These stains may be coated over in one hour.—217.

J-Shading Stains — These shading stains are supplied in any color or shade. They are absolutely fast to light and can be applied either over or under the sealer coat.—218.

Pigmented Wiping Stains—Do not settle hard—are permanent in color; do not raise the grain.—244.

Norcy S1230 Lacquer Sanding Sealer—Fills exceptionally well; dries quickly; forms a perfect bond; sands easily; does not shrink.—192.

Sealer Varnishes — Gives excellent adhesion, great coverage and remarkable toughness. The sanding is like that of lacquer sealer. In spraying Sealer Varnish, be sure to use a thin coat. Nothing can happen if a heavier coat is applied, except that you are wasting the material and retarding its drying by using more than necessary. Since this material has from two to three times the solid content of lacquer sealer, you can readily see that a heavy coat is not desirable or necessary.—131.

Keen-Lack No. 3000—A new lacquer-base material of particular interest in production work as it can be used both as a foundation coat and as a semi-gloss finishing coat. Takes fully 25% to 35% lacquer thinner for spray application. Will not blush nor bloom.

Staining Dry—Something really new and about which we are not at liberty to publish details yet, is a mechanical process of applying dry pigment stain to the wood to be finished. It may sound impractical to secure satisfactory results in this manner but samples and information revealed to the Editor are amazing and convincing.

For interior decorations and furniture I have noticed that Formica and other types of plastics are coming into demand. And for 1941, I'm sure you will see more plastics used by the furniture manufacturers and decorators. The reason I think, is that with the war spreading into other countries and our Defense Program demanding a great amount of wood, something is going to have to take the place of wood, so plastic will be the answer. The coating and decorating of molded plastics is an interesting field . . . . —R. Davis.

A good sealer or foundation lacquer, having easy sanding properties. Sands clean without gumming the paper. Should do this in 30 minutes under good drying conditions. Excellent foundation coat for lacquer enamels, clear lacquers, synthetic enamels, oil enamels, varnish.

An excellent finishing coat in itself, giving true rubbed effect finish when one or two coats are applied over a foundation coat, using the same material throughout. Rubs easily but does not necessarily have to be rubbed, as it has both good flowing and leveling and brings up a rubbed effect finish in itself.

Gives a tough, durable coating that resists scuffing, bruising or scraping; is waterproof and alcoholic beverage-proof.

Practically water-white so that it can be used for the modern, bleached or very light finishes. Takes glaze applications easily, producing excellent 2-tone effects. Offers high cold-check resistance.—106.

Quick-Dry Synthetic Filler—An up-to-the minute development in fillers for the furniture trade. These fillers are made with the very latest developments in synthetic resins and oils. They dry rapidly to a smooth, non-shrinking surface. When dry, they are little affected by lacquer solvents.—116.

Mac's Fashion Cristalite Lacquer Sealer and Lacquer — For producing the ultimate in the new bleached and extremely light modern finishes; pale in color; will not darken with age. Produces a tough and durable finish that is crystal clear and resistant to water and alcohol. These materials are applied and used in the regular manner. When applied over the extraordinary light finishes they leave them in practically the same color as they were before the finishing applications were put on.—227.

O-Shelac—A perfect foundation finish for either varnish or lacquer; also an excellent final finish when two or more coats are applied. Exceedingly durable, waterproof, and alcohol-proof. Will not blush or bloom in any kind of weather. A product that has been generally accepted and constantly improved for the last 30 years.—219.

Lac-O-Var—Combines lacquer speed with varnish body. Dries dust free in five minutes and still retains the feel and appearance of a full-bodied rubbed varnish film. Produced in various sheens with the exception of a high gloss.—220.

S-Y Shellac Mixing Lacquer—Used in combination with shellac, will toughen the coat, increase durability, increase waterproof qualities. Two recommended mixtures for this purpose are:

S-Y Shellac Mixing Lacquer	1
Shellac	1
Alcohol	1

For a thinner mixture:

S-Y Shellac Mixing Lacquer	1
Shellac	1
Alcohol	2

Either of these blends can be applied in exactly the same way as in the case of a straight shellac.—107.

Hi-Build Lacquer LS225—This lacquer combined with LS220 Hivis Sealer and LS227 Flat Lacquer, developed for high-speed production finishing for furniture, radio cabinets, etc. Rubs and polishes with minimum of labor cost to a hard durable surface. Unusual clarity, build and resistance to printing, alcohol, mild acids, and alkali solutions. One coat of sealer on maple, birch, gumwood, produces remarkably good results. Flat Lacquer is clear and smooth and equally capable. LS220 Sealer, a non-royalty sealer, sands easily in 30 to 45 minutes. Excellent building properties, perfect flow makes for easier sanding. —261.

Plastic combines with mahogany to fashion this unusual living room group which is as smartly modern as it is authentically traditional. Plexiglass rods form the lyre motif of the "Regent" table. A transparent plastic medallion, drawer pulls and ferrules add to the smartness of the table. The sofa uses plastic on the frame which connects the arm with the leg; also a carved plastic trim and transparent ferrules. Photo, courtesy American Furniture Mart.

Nu-Glaze—This glaze was developed for the production line. It can be coated in one hour after application and it tends to produce a good tough finish, due to the cotton base it has. —201.

Drawer Finish—A system for finishing drawers, consisting of a non-royalty lacquer and a natural wax. This drawer coater is made in any color desired, including butterscotch, amber, maple, mahogany and walnut.—129.

Bleaching Veneers—We maintain mechanical chemical processing plants to bleach veneers through and through, and do volume process work on solid small articles of wood, such as handles and toys, under vanAllen patents. Many of your readers may not know to what thorough extent this company carries its basic idea of decolorizing wood and other cellulose materials.—122.

Flat Varnish for Furniture—This is really new; a new non-inert pigment. No settling troubles with this type. Greater clarity and uniformity.—245.

Tech Var Clear-Tone Furniture Varnishes—By eliminating the milky appearance which has always been typical of flat varnishes, the new Tech Vars justify the appellation "Clear Tone". Not only do the new Clear Tones possess greater clarity but they boast increased alcohol and water resistance, have a smoother feel and show a uniformity of sheen despite aging, heat or cold.—163.

Star Varnish No. 1313—A one-hour dry varnish that produces a hard heavy-bodied finish. A surface finished with this material can be handled one hour after its application.—269.

Essar Dead-Flat Varnish No. 4500—Dries overnight, giving excellent body and depth to the finished work and leaving a film that will not become brittle with age. May be kiln-dried for two hours at 125°F. to increase speed of drying in order that work may be packed and shipped the day following application. Will not print. If necessary, it may be thinned with naphtha. —202.

Essar Semi-Flat Varnish No. 4501—Has the same merits as No. 4500, but gives an eggshell gloss finish instead of dead-flat appearance. Offered in any sheen to suit requirements.—203.

L. R. (like-rubbed) Varnishes—This "rubbed effect" varnish eliminates costly rubbing operations. Will set dust free in 10 to 15 minutes and dries hard to pack over-night with pad marking. Especially suited for production work where speed is a factor. —221.

Synthetic Waterproof Flat Finishes—Made by an entirely new and different process in flat varnish manufacture. The manufacturer chemically treats fossil gums so as to produce a dead flat finish. This flat is then blended with gloss varnish to get the desired sheen, so that it is not necessary to use stearates, resinates or other foreign flattening agents usually found in the conventional type of flat varnish.

This process gives the following distinct merits: 1) A beautiful rubbed-effect appearance. 2) Waterproofness and liquor-proofness. 3) A finish free from orange peel. 4) A finish that is perfectly clear, bringing out the utmost in the beauty of the wood and stain. 5) Varnish that does not change sheen upon standing.—130.

Tech Var Baking Furniture Varnish—A high-build varnish for application as one coat over sealer, which is designed for baking or force drying. Besides unusually good speed, the varnish presents very highly developed film characteristics. A wide range of baking schedules is available. A typi- schedule is two hours at 125°F.—167.

Essar Rubbing & Polishing Varnish No. 4503—Dries overnight, giving unusual depth and body to the finished work. May be rubbed and polished the day following application, rubbing either by hand or machine, with water, oil or rubbing compound. Takes a high polish, leaving film that will not become brittle with age. If necessary, it can be thinned with naphtha. —205.

Air-Dry Over-night Rubbing Synthetic Coater—Has the building qualities of a varnish but dries to touch as quickly as a lacquer and is as print-proof as the highest grade lacquers. This product can be furnished

in both flat and gloss. The gloss Syntho Coater may be rubbed in six to eight hours, but best results are obtained after overnight air drying.—224.

Low-Bake Synthetic Coating—A material with exceptional qualities; requires baking or drying ovens and must preferably be used on a conveyor.—225.

Synthetone—A group of new clear furniture finishes of the heat-hardening type. These materials cure in from one to two hours at 140 to 150°F. When cool they may immediately be rubbed, polished and crated. Synthetone has the gloss and spread or covering of varnish and the speed and quality of lacquer. It makes possible rapid streamlined production.—115.

Photograph, courtesy of Tousey Varnish Co.

It cannot be said that shellac is a new development except perhaps to the extent that we have specialized our product to the degree that today we do offer different types of shellac for different industries.—W. Z. & Co.

Speedroy Lacquers — New fast-drying royalty type; conforming to high standards of uniformity, quality and performance. Available in all sheens. —190.

Radio Cabinet Finishes—Newly developed lacquer system for finishing all types of case goods.—243.

Mac's Fashion Finishes—A complete line of deluxe wood-finishing materials of highest quality, including fillers, stains, varnishes, sealers, lacquers, drawer coaters, primers, and everything for finishing fine furniture. These materials are noted for their clearness of tone and durability.—228.

"500" Line of Furniture Lacquers—Includes 594 Lacquer Sealer; 595 Gloss Lacquer; 596 Flat Lacquer. The finish withstands extreme temperature changes—below zero to above 100°F. —without checking, and has exceptional resistance to marring, printing, alcohol, water and oil. The material is remarkably clear in all sheens; is free flowing; rubs clear and produces a tough durable film.—184.

Noroy High-solid Cold-Check-Resistant Lacquers — Include W1055 gloss (37% solids at gun) and F1656 Flat (32% solids at gun). Beautiful alcohol-proof one-coat finish sprayed cold. Cold-check test conducted by U. S. Testing Co., Inc., Hoboken, N. J. Certificates No. 12958 and No. 11943 showed no breakdown in finish upon completion of the 15th cycle (120° to 5° F.).—191.

Serious consideration is being given the test control investigation of protective coatings, by the users of such materials.

Many establishments have inaugurated means of evaluating the finish which they place on products of their manufacture. In some instances the test procedure is crude, but it serves as a specific purpose in that it is an attempt to control and evaluate a definite looked-for factor. —M. C. R.

Vindolac—A new development in the lacquer field. An extremely tough, smooth-flowing 100-proof liquor-resistant lacquer; highly resistant to hot and cold checking, hot water, hot dishes, dilute acid and alkaline solutions. A heavy-bodied lacquer formulated with ½-second cotton and carries the full quota of 27% solids. Another outstanding feature is that it has less shrinkage. The combination worked out, with special gums and cotton together with the highest grade plasticisers and solvents, has made it possible to produce this heavier-bodied material and still keep it within the 27% limits. Available in all regular sheens—gloss, semi-gloss, satin finish, flat and dead flat.—193.

D B Lacquers—Are based on cellulose ether rather than cellulose nitrate. Owing to the low specific gravity of the ingredients, it is possible to spray them at a solid concentration of 38%. If it were possible to spray nitrocellulose lacquers at such high-solid content, it would require a nitrocellulose lacquer of 47% solids to produce a finish of equal film thickness. The manufacturer claims that one coat of these lacquers will leave a finish equal to two coats of patented lacquers.

These lacquers dry as quickly as ordinary lacquers; have no tendency to blush, even under conditions that make the use of nitrocellulose lacquers practically impossible; and they combine the good qualities of varnishes and lacquers with none of the disadvantages of either.—138.

Star Nu-Glo Finish—Used, where a high luster is desired, in place of amalgamator, French varnish or other Frenching materials. This is also used without oil.—270.

Opex Clear-Tone Furniture Lacquers—Eliminating all haziness which has been typical of flat lacquers in the past, Opex Clear Tone Flats will appeal to the furniture industry. They provide not only improved appearance but also better resistance to spot tests. There is unusually good gloss retention, with no change in sheen despite aging under hot or cold conditions.—164.

Thermotite—An adaptation of finishing materials to elevated temperature methods of application. The purpose of the "Thermotite" system is to reduce the viscosity of organic finishing materials through heat and without the use of excessive proportions of solvents. In so doing the solid con-

Our particular interest at this time is enamels for shell finishes—"munitions". One of our new enamels is particularly suitable for coating shells being made for military service. This enamel is particularly resistant to the special conditions in connection with loading and subsequent use of the shells, bombs, and the like. The finish not only meets Government specifications, but gives necessary resistance to T.N.T. and other materials now in use. No particular name has been given to this finish. No general description, of course, can be given, as it is a special job to meet special conditions.—100.

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Bleaching Mahogany—We found it practical to offer a special formula for the requirements on Honduras mahogany, which was reported to be in more extensive use in some localities. A new formula of "Blanchit" seemed to be an improvement on anything heretofore obtainable for Honduras mahogany and similar woods that are as hard, have been considered impregnable, and most difficult to bring about complete bleaching results.—121.

tent of these materials, so used, is maintained at a relatively high and desirable level, thus securing equivalent film thickness with a lesser number of operations. The saving in time, labor and material, through the adoption and use of "Thermotite," is a self-evident and proven fact. Production trials in various plants denote actual savings.—265.

Qualasole—A modern French polish which, the manufacturer declares, "has been made just about foolproof, quicker and more complete hardening, faster drying, increased water resistance, increased abrasive resistance, longer life and the complete elimination of 'softening-up' during hot weather—all this without affecting its o r i g i n a l and astounding workability." Qualasole is applied with a pad, in the same manner as French polishing, either to the raw wood or over any shellac, varnish, lacquer, paint or enamel finish.—174.

Qualalacq Special 866—Formulated to yield a high grade wood lacquer of the synthetic type which possesses a marked degree of penetration, smooth flow, accentuation, body, h a r d n e s s, flexibility, balance, clarity, depth of tone, ease of application, and low cost. Its hardness is such to resist impact, press markings, average heat, water, 120-proof alcohol, and will not scratch white. A naturally high-gloss lacquer, but may be rubbed and polished to any desirable degree of gloss approximately 24 hours after application of the final coat. Specific mention must be made of its excellent rubbing and polishing properties which make this lacquer suitable for high grade piano and cabinet finishing.—175.

Qualalacq Popular 399—A first class high-gloss synthetic lacquer formulated to meet the demands of the price buyer. This spray and brush lacquer over-compensates for the rigid requirements set by the big consumer of lacquer. Quality and good working properties have not been sacrificed to produce this product. The method of application is essentially the same as that for Qualalacq Special 866. A commensurate price range thinner for this exceptional lacquer is Qualalac Thinner 520.—176.

Qualalacq Super 100E—Produces a hard film which is positively resistant to the strongest alcohol, water, moderate heat, abrasion, impact, and will not scratch white seven days after application. Recommended for table tops, bar tops, and the like, requiring a super finish which is resistant to the hardest use. This unique product retains its flexibility indefinitely and possesses a high factor of permanency. The method of application for Qualalacq Super 100E is essentially the same as that for Qualalacq Special 866. Important: Use only Qualalacq Sand-Seal 200 as a sealer; avoid the use of shellac or any mixture thereof under this lacquer.—177.

The subject of proper cleaning of metal surfaces is undergoing serious consideration. With the use of synthetic resinous compounds of the alkyd, urea, melamaine, etc., types, the problem of adhesion to metallic surfaces is causing some concern.

The trend toward molded plastics is also partly responsible for the present investigation of proper means, manners and substances to use in the proper cleaning of metal surfaces.—M. C. R.

The Makers of NOROY Lacquers Announce

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Qualalacq Rubbed-Effect 755—Produces a desirable rubbed finish without resorting to the labor involved in rubbing down a gloss finish. To formulate a rubbed-effect lacquer, extreme precautions must be taken to incorporate a flatting agent which does not effect the film as to hardness, texture, flexibility, durability, and uniformity. Produces a smooth, uniform surface. It is generally used as a final coat over gloss lacquer, sealer, or shellac to create an economical rubbed finish.—178.

Qualalacq Dull 288—Specifically formulated to meet the requirements of economical work. Quality and good working properties have not been overlooked to produce this unusual spray and brush lacquer. In order to eliminate the labor of rubbing down a gloss finish, a final coat of Qualalacq Dull 288 serves this purpose satisfactorily. —179.

Qualalacq No-Sheen 799—Fulfills the need for a finish possessing little or no gloss. Its use and method of application are indentical to Qualalacq Rubbed-Effect 755 and Qualalacq Dull 288. —180.

Improved Blue Streak Remover—Contains no parafine wax. Has no effect whatsoever on the drying of lacquers or other finishing products used on a removed surface. Owing to its high viscosity, it works better on upright surfaces than conventional removers. It stays wet longer than other removers.—139.

Automatic Finishing—Mechanical methods of handling products to be finished, of applying the finishes, and of distributing the finishing materials continue to increase in use. They are, of course, suitable only where products of a single kind are being produced in considerable quantities, but their use is not necessarily limited to very large operations.—G. K.

Satinol Sta-Dull French—A French polishing liquid that remains dull after being used or after having been steelwooled. This comes ready to use and does not require oil.—267.

Wax-O-Namel No. 315—Air-dry. For juvenile and breakfast-room furniture, housewares, and on wood products. Applied over Ceramite primed, well-prepared surfaces to create a deep, yet soft wax-like sheen. Highly resistant to marring, scratching, and abuse because of "built-in" real wax; 19 smart standard shades, and special colors, too.—257.

Finishes for Plastics

Notwithstanding the fact that molded plastic products are made wherein the surfaces are perfectly smooth and pleasant to touch, with various solid and mottled colors in-

Another new material is a sizing varnish for decorated tin-plate, such as is used in tin cans or screw caps. Such caps can be made from flat sheets of tin plate, which have been roller-coated with a clear varnish or pigmented enamel. The sheets are fed into a punch press which stamps out the caps. In this operation, in which the metal and varnish are severely stretched and bent, the varnish may often crack or peel off the metal. To improve the adhesion of the varnish to the tin, a clear sizing varnish is often used directly on the tin and underneath the finishing varnish or coating.

This new sizing varnish has greatly improved adhesion and flexibility, thus cutting down the possibility of failure in the drawing operation of the finishing varnish.—J. W. McHugh.

NEW SYNTHETIC ENAMELS THAT AIR-DRY HARD

COPRENE ENAMELS, another development of M&W Research, supply what many production men have long been seeking . . . . . a finish that combines the durability and build of a synthetic enamel with the dust-free drying properties of a lacquer.

These new chlorinated-rubber base enamels air-dry dust free in a few minutes. And they become so hard on air drying 24 hours (or on force-drying for 1 hour at 200° F.) that they will not "paper print." *And they are hard clear through* . . . no mere surface hardening with a soft interior.

AIR-DRIES

Many difficult finishing problems can be solved with Coprene Enamels. They adhere well and are resistant to outdoor weather and household chemicals; gloss and flexibility are good.

Coprene Enamels are available in clear, black, white, and colors, and also in silver, copper, and other metallic lustres. They are suitable for use on all metals. On wood they can be used either over a surfacer for a smooth finish or directly on the wood.

Write for full information.

●

Maas and Waldstein Co. Newark, N. J.

Branch Offices and Warehouses . . . 1639 Carroll Ave., Chicago . . . 1228 W. Pico Blvd., Los Angeles

LACQUERS **PIONEERS IN PROTECTION** ENAMELS

corporated therein, a real demand for organic coatings has developed among manufacturers of these molded plastics. Various reasons exist for the desire or need to "paint" some plastic articles. For example, the brown and black molding compounds are much cheaper than those of the more attractive bright lustrous colors, some of which have opalescent effects. Volume runs can be made in the lower-priced browns and blacks and then these dark colored plastic items can be coated and decorated in a variety of brilliant colors, including those showing beautiful opalescent luster. As a result, the manufacturer obtains a variety of attractive colors at much lower cost by "painting" plastic products of standard design, that he would if he had used the more expensive brightly colored plastics to secure this same variety in color.

New problems entered the picture when it came to making finishing materials adhere satisfactorily to smooth plastic surfaces—especially where the finish was baked. However, leading manufacturers of finishing materials have developed finishes that meet the requirements of the makers of molded plastic products, and a number of these finishing materials are now in successful use. Some of them are listed here.

Opex Pearling Lacquer—A finish producing a real pearl appearance. Has excellent adhesion to Tenite II.—165.

Wax-O-Namel No. 314—For finishing of plastics. An outstanding one-coat finish for application to water-sanded molded plastic products. Available in all colors for bake process, one hour at 250° to 275°F. Deep lustrous wax-like finish closely simulates appearance of pastel-colored plastics. Good adhesion, excellent film hardness for resistance to marring and scratching. Clear jewel-like colors for sales appeal are some of the features, especially developed for molded radio cabinets.—259.

The merchandising world has become increasingly aware of the fact that "package sells the product," and to those millions of varied products whose finish serves as the sole package, the progressive finish manufacturers are providing "better packaging." Besides the inevitable small improvements which are being built constantly into old lines, there are a number of entirely new finishes as well as others boasting outstanding changes.

Spray and Brush Lacquers—A new line which can be used over molding compound of the cellulose acetate type and which dries reliably without "after-softening."—151.

Opex Lacquer for Polystrene—A new lacquer finish which produces excellent results on this heretofore "difficut to finish" plastic.—173.

Quick-Bake Enamels for Phenolic Plastics—Adjustable baking schedules to fit any finishing method or system. Obtainable in a large variety of permanent, durable colors.—135.

Tuf-On No. 168 (For Plastics)—For application to either laminated or molded plastics for exterior or interior uses. A new coating of the Bakelite type which requires only one coat, and which gives a colorful finish with a porcelain-like glossy, hard, tenacious film. Made in two types, air-drying and baking. The coating will adhere to plastic surfaces—either a sanded or the natural glossy surface. The air-drying material sets in about 20 minutes and dries hard in about 12 hours. The bake finish requires about one hour, between 250° and 300°F. Usually one coat is sufficient, applied

As the Model Poses for the Artist...

Photo by Camera Guild, Inc., N. Y.

To create the true masterpiece talented artists employ models instead of depending upon memory or imagination.

Likewise, to create attention-compelling finishing schemes we employ as models, the actual commercial products to be finished.

If you have a product worthy of a better finish or a product that should sell in greater volume but somehow lacks the spark that ignites interest, write us about it.

Our Creative Studio Service has been the stepping stone to greater sales for many a product . . . it's a service rendered to reputable firms without cost or obligation.

ROCKFORD VARNISH COMPANY

Manufacturers of Finishing Materials

ROCKFORD • ILLINOIS

NO TAMPERING WITH QUALITY

Kindly mention INDUSTRIAL FINISHING when writing advertisers

Plastic Finishes—Improved developments in plastic finishes (clear, colors and bronze) pave the way and make it possible for you to accomplish results and costs never before attainable. Either molded or laminated clear plastics can now be attractively and satisfactorily decorated in the color of your selection and specifications. Each plastic however, requires special formulation for proper drying, adhesion, gloss and durability of the finish.

One concern states that it is prepared to supply you with any type of plastic finish, as well as to offer:

1) Bronze coatings that give reverse leafing of bronze powder on the bottom of the film for plastics coated on the reverse side; and—

2) Coatings that prevent migration of the plasticizer out of the plastics.—208.

by spraying. Available in practically any color if purchased in sufficient quantity. Ready for normal application. Use Tuf-On No. 168 thinner, if required.

This finish stands a very severe weathering test on exterior exposure without undue loss of gloss or film failure, and his exceptional resistance to abrasion and marring for interior service.—132.

Essar Brand Plastic Finishes—Available in clear, colors and bronze for the following types of plastics: phenol formaldehyde, methylmethacrylate, cellulose acetate, cellulose butyrate, pyroxylin, ethocel, poly-styrene and urea-formaldehyde — together with those known to the trade as Bakelite, Plexiglas, Lucite, Tenite No. 2, Tenite No. 1, and many others. As a result of experienced developments in this field, many satisfied users have been in production for a long time, the manufacturer declares.—209.

The increase in home building opens a new field for synthetic enamel manufacturers. Synthetics can be used on interior woodwork, metal trim and built-in cabinets. Painting contractors and home owners should be educated to the advantages of synthetic enamel over the old oil enamels in regard to wear resistance and longer life.—Al. Matlock.

Miscellaneous

Several interesting and valuable materials are listed under this general heading which includes various kinds of items that do not fit appropriately into any of the foregoing classifications.

Waxand—Finishing wax. Used also for polishing wood handles, etc.—256.

Wax-O-Namel — Toilet-seat finish. A proved quality process offering low unit cost and maximum durability with unequaled sales appeal. Non-checking, good color retention, highly resistant to abrasive action, moisture, mild cleaning agents, acids, etc.—258.

Essar No. 4202 White Picture-frame Lacquer—Requires 100% thinning to spray and with normal handling on the part of the spray operator, will give a beautiful finish to the frame or molding. Covers completely in one coat and gives the appearance of depth to the finish. The dry film has a semi-gloss luster (also available in high gloss). Available in a wide range of tints.—210.

Essar Floor & Trim Varnish No. 4502—A fast-drying product with excellent ease of brushing, leveling out perfectly and drying dust-free in 20 minutes. Furniture or other individual objects may be handled and moved the day following application. Has good waterproof qualities, together with toughness and durability.—204.

★ Meeting the Needs of AUTOMOTIVE INDUSTRY with Adhesive Tapes

This major industry recognizes the value of industrial adhesive tapes as a quick, economical method of protecting surfaces, finishes and plated parts; for finishing, masking and blocking out areas.

You, too, can facilitate production, save time and money by using the Industrial Tape Corporation line of adhesive tapes.

Your special tape problem is our problem. We'll help solve it, without obligation.

INDUSTRIAL TAPE CORPORATION
NEW BRUNSWICK, N. J.

★PERMACEL
The Paper Backed Tape

★JONFLEX
Fine Cloth Tape

★INDUSTRIAL
Coarse Cloth Tape

UTILITAPE
Waterproof Cloth Tape in Standard Colors

ELECTAPE
With Flexible Bakelite Coating

TEXCEL
The Cellophane Tape

•

Samples on request

Kindly mention INDUSTRIAL FINISHING when writing advertisers

We have a perfected product that will produce a gold finish and is already mixed for brush or spray work. This is made up in a high luster chrome finish that resembles chrome plating, is very durable and comes in heat-proof form. —268.

Bronzing Lacquer—Intended for use with aluminum and gold bronze powder. Dries with the usual speed of a lacquer bronze medium but possesses superior leafing qualities. The silver can be furnished ready mixed, if preferred, but the gold must be added at the time of use.—154.

Bronzing Lacquer No. 919—A high-viscosity water-white liquid especially prepared as a medium for colored or bronzing lacquers. Requires no sanding.—109.

Bronzing Lacquer No. 5455B—A better grade than the No. 919. Tougher, more durable, containing first grade nitrocellulose and other high-grade lacquer solids. It is not necessary to sand after applying the bronzing coat. —110.

Non-Jell Bronzing Lacquer No. XL-1878—Gold or silver bronze powders or paste can be mixed with Non-Jell Bronzing Lacquer without danger of jellying over any length of time. Is especially recommended where bronze powders are carried directly to metal surfaces.—111.

No. 50 Terminal Compound—An item which we have developed for the lighting fixture people. It is used for sealing the backs of porcelain receptacles and is used a lot in the new fluorescent light field . . . . a terminal plastic compound which is applied cold and has an immediate surface drying. Even though the compound has not thoroughly dried out, articles can be put into production, as the material is a non-conductor and there is no fear of any trouble in this connection. It is non-inflammable, a non-conductor, heat-proof, moisture-proof and has excellent adhesion.—226.

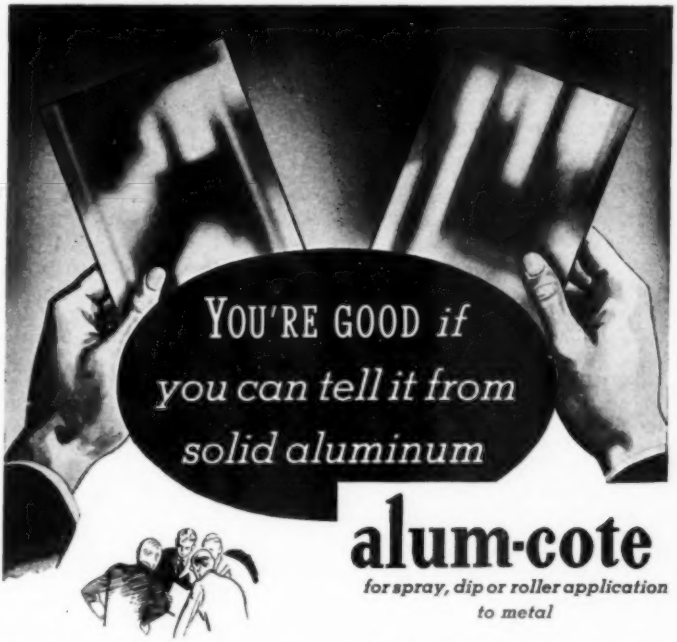
Insulation Finishes—These are used to prevent moisture condensation.—242.

Essar Lacquer Sealer No. 3821—Cuts labor costs because it minimizes the actual time required for sealing and varnishing floors as well as sanding them; it is quicker and smoother. It does not raise the grain; seals the floor tight; has good color and causes no discoloration; dries fast—one hour after application, final coat of varnish can be put on, or floor can be waxed. To give the best results we suggest thinning this material with our No. 3919 thinner.—206.

Ly-tyte — High-quality Venetian blind finishes for application to either wood or metal. "Ly-tyte" offers the manufacturers of Venetian blinds a single or double coat finish, that produces extraordinary adhesion and durability. Gives unusual spread and

Plywood Aircraft—In the new development (sometimes called "ply-bond" or "Duramold") for use in aircraft construction, a new system of coating had to be developed to meet the following qualifications for durability: Moisture resistance, flexibility to withstand weaving, toughness to resist erosion, and smoothness to minimize wind resistance.

According to one finish manufacturer, three years of research and testing proved that the best finishing system was one of the Bakelite type. The superiority of this system was proved by actually flying a plywood constructed airplane for over two years, through exterior durability tests in several sections of the U. S., to study climatic conditions—and by numerous tests in the laboratory.



alum-cote

for spray, dip or roller application to metal

Retaining its brilliant, continuous surface lustre through deep draws and severe sterilization processes, Alum-Cote is ideal for roller coat, spray, brush or dip application (both baking and air drying types). It is often used to cover over spoiled metal and saves the cost of caustic cleaning as well as wasted sheets. Write for a sample, today—no obligation.

TOUGH JOB HEADQUARTERS

℞ Prescription Finishes

Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

. THE WATSON-STANDARD CO.

Manufacturers of

PAINTS . . . VARNISHES . . . INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS

FACTORY AND GENERAL OFFICES: PITTSBURGH, PA.
In CANADA: Thorpe-Hambrock Co., Ltd., MONTREAL
WAREHOUSE: Boston - Buffalo - Detroit - New York

Hammer Finish seems to have shown great progress during 1940. This decorative finish is marketed under several trade names. It is made on a nitrocotton base, in a quick air-drying finish; as an overnight air-drying synthetic and as a baking synthetic. This makes it suited for use on wood, metal and any other material to which a paint may be applied. It comes in almost any pigment or metallic color. When pigment is used, sufficient metallic bronze is added to float and permit formation of the hammer design. This accomplished by first applying the finish direct to the surface, or over undercoats if desired, and then spattering a clear liquid into the finish before it dries. The result is a finish resembling hammered metal.

Hammer Finish is popular because its design tends to obscure defects in the surface; making it possible to effect a saving on surface preparation or in the quality of wood or metal used. It has the virtue of being smooth and is more easily kept clean than surfaces coated with some other types of novelty finish.—R. J. Burns.

perfect flow. Air dries in quick time or may be flash-baked with utmost freedom from usual causes of rejects. Low-unit loss and low-unit cost feature. Produced in a variety of approved and special colors.—264.

Wax-O-Namel—For Venetian blinds. For spray and roller coater application over undercoat. Amazing coverage, smooth flowing, and mar-resisting. For air-dry process only.—260.

Silk - Screen Stencil Colors—A new line made on a lacquer base, having perfect waterproof qualities in addition to good handling characteristics. —149.

Nuprint Textile Colors—A new line of colors, for printing directly on cotton, rayon, acetate, and other textile fabrics, which can be applied by means of standard textile printing machinery and require no after-treatment. They make possible effects produced by older types of colors but with fewer processes and at greatly reduced costs.—160.

Concentrated E C Lacquer Tints—The outstanding merit of these products is the fact that they will mix with a wide variety of finishing products. They can be used to tint lacquers. If mixed with clear lacquers, they can be used to make lacquer enamels. Exellent brushing enamels can be made by mixing them with white shellac. They can be used to tint spirit and shellac enamels. Will also mix with some oil enamels. Being in a concentrated form, one gallon of color mixed with three gallons of lacquer or shellac will make four gallons of lacquer enamel, with good coverage.—140.

Kem Bulletin Solfast Colors—Specially formulated to give the maximum in color retention and fastness to light . . . . made possible by the use of an entirely new type of dry color, perfected by the world's foremost paint and color chemists, and manufactured under rigid control. These colors combine the excellent working properties of regular Kem Bulletin Colors plus increased color retention and controlled chalking qualities heretofore unheard of in any type of bulletin color.

Discriminating plant operators, sign painters and advertisers, who are primarily interested in maintaining outdoor painted displays of higher character and longer life, will immediately recognize the added value represented in these new finishes. "Are the most permanent of two exceedingly difficult colors, namely blue and green."—237.

Texkin, A Perfect Skin Protection—A harmless cream preparation used for the protection of the skin of finishers. Is applied, like any skin lotion, when the skin is clean and dry;

BERRY BROTHERS NOW SERVE ANOTHER FAMOUS PRODUCT—

EUREKA

ENJOYS 43% SALES INCREASE WITH COLOR

EUREKA Vacuum Cleaner Company, Detroit, Michigan, have enjoyed a 43% sales increase over 1939 and attribute their success to the use of color. One of the most popular Eureka models is finished 100% with Berry Brothers Finishes. We are pleased to have as our customer another such outstanding, nationally known firm.

Eureka aluminum castings are finished with a special Berry Brothers gray primer . . . with a high-gloss, hard-surface gray metallic finish coat. (Results show exceptional adhesion to the aluminum . . . and high resistance to chipping, and abrasion in the carton.) Cleaner handle is finished with one dip-coat Berry Brothers special gray enamel.

What is your finishing or "eye appeal" problem? Let us help you with it.

BERRY BROTHERS
Industrial Varnishes • Enamels • Lacquers
DETROIT, MICHIGAN • WALKERVILLE, ONTARIO
JERSEY CITY • BOSTON • CINCINNATI • CHICAGO • ST. LOUIS

is rubbed over the surface to be protected—face, neck, arms or hands—until it dries and vanishes. This requires only a minute. Its action is to form a tough, flexible, invisible film all over the skin surface, yet one that is soluble in water. All elements which ordinarily contact the skin remain on top of this tough film, never reaching the skin's surface. Thus complete protection is assured. The Texkin film, with its accumulation of foreign matter, is removed by merely washing the surface with warm water and any gentle toilet soap.—141.

Suede and Plush Finishes—Flock of both rayon and cotton types is now being used for imitation suede and plush surfaces. The flock is sprayed through a special gun directly onto a wet adhesive which has been previously applied to the base material: cloth, wood, plastics, metals, etc. The effects obtained are highly satisfactory for the many applications that formerly used fabrics.—194.

Escolox Wood Dimension Control—A simple treatment for any wood, which permanently prevents swelling, shrinking and checking due to absorption or loss of moisture. This material is not a sealer but it penetrates completely into the wood without closing the pores. A simple surface application, without vacuum or pressure, is all that is required. The liquid may be applied by brush, spray or dipping. Treated lumber may be finished the same as untreated wood.

Leaders of the industry have been of assistance to the government in helping to modernize the finishing specifications for material. Many products now needed in large quantities have not been manufactured for a period of years, and, as a result, their finishing specifications are obsolete. Through the co-operation of the industrial finishing industry, these specifications are being brought up to date.—G. K.

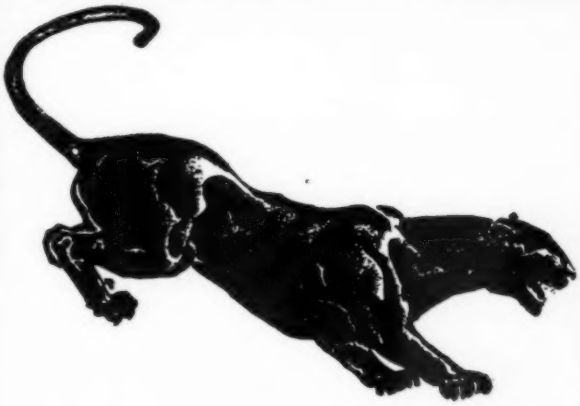
We have a newly developed finish for mechanical rubber and molded plastics. Also, a new finish for paper to prevent water absorption.—246.

Escolox WDC is nontoxic and may be applied either on wood before fabrication, or on products after fabrication. For best results Escolox WDC should be applied at temperatures around 70°F. The treated wood must be allowed to dry from a minimum of 24 to 36 hours before finishing. This is important.—239.

Spangles—"Cellophane" cut into finely divided particles gives a brilliant novel finish for signs, displays and novelties. The glitter obtained with this unique material, when bonded to a background by means of an adhesive, offers a finish that has wonderful possibilities. Spangles can be obtained in various sizes for different applications.—195.

Penetrating Wood Finish—A new wood finish that penetrates into the pores and becomes an actual part of the wood. Designed primarily for floors, and may be employed on interior wood work, trim and paneling. Produces satisfactory and durable results with less labor and expense. The finish sinks deeply into the wood, filling the voids, and binding the wood fibers together. Through the addition of oils and resins, it is said to impart to the wood marked toughness and resistance to wear. It differs from old-type materials in that it leaves almost no surface film.

The material contains a moisture-proof composition, preventing accumulation of dust and dampness. Wood surfaces so protected do not turn white upon contact with water. If applied clear, it gives a finish slightly darker in color than that of white shellac. Color effects may be obtained by adding an oil stain to the first coat, giving any desired depth of tone. The stain does not destroy its transparency or any of the original characteristics.—123.



S-M-O-O-T-H ... but TOUGH!

After months of research and testing, the Stanley Chemical Company is proud to announce a new Aluminum Baking Synthetic . . . No. 66H-1307. It's a new coating for metals, so s-m-o-o-t-h in appearance, that it looks like dull chromium plate; so TOUGH that after long exposure to wear and weather, it still retains its original color and brilliance. Although developed as a spray finish, Stanley 66H-1307 Aluminum Synthetic is extremely well suited to dip application, with complete freedom from streaks, runs, and drips. (Also available for Air Drying . . . No. 66H-1515). Order a five gallon testing sample TODAY. It will be billed at the drum price. Address Department "A."

THE STANLEY CHEMICAL CO.

EAST BERLIN CONNECTICUT

Lacquers · Enamels · Synthetics · Japans

A SUBSIDIARY OF THE STANLEY WORKS, NEW BRITAIN, CONN.

We have developed a new material called "Sherdye," for the textile industry—one that can be silk-screened onto various fabrics and will withstand washing. The colors are called Sherdye Textile Screening Colors. We have no colors in that product however, as yet. —236.

Ship and Deck Finishes—Available in three new colors designated as Biloxi Blue, Hatteras Grey, and Belfast Green. These three additional shades increase the line of ship and deck finishes to ten different colors.

Biloxi Blue is a clean bright blue similar to the color of the water around Biloxi, Miss. Hatteras Gray is not as dark as a battleship gray and has a clean blue tone. Belfast Green is a rather bright, light green not as dark as an emerald green, and a popular tint for cabin roofs or forecastle decks.

Ship and deck finishes dry quickly, permitting the boat to be put back into service in a comparatively short time. Experience indicates that these finishes are resistant to oil and gasoline, are superior in durability, and retain their color and good appearance over an extended period.—125.

Marine Wood Primer—Recommended for use as a first or primer coat on new exterior wood surfaces or on surfaces where all the old finish has been removed and where finish coats of "Dulux" Marine Clear are to be applied. It penetrates the wood and acts as a sealer, retarding the absorption of moisture at butts and joints. The use of this primer adds to durability and gloss retention of finish coats, thus reducing any tendency of the finish to peel away from butts, joints, cuts, and scratches.—126.

Floor and Deck Enamel White—Possesses the qualities of the other shades of floor and deck enamel, but differs in that it should not be used outside. Gives a tough, elastic film which adheres firmly to a surface, will not wear off easily, and will not check or crack. It is alkali resistant, so it can be washed with ordinary soap solutions. One coat is usually sufficient to renew the finish of previously enameled surfaces. Recommended for all kinds of wood, cement, deck or porch floors and will withstand the ordinary abuses to which floors and decks are subjected.—127.

Super-Clear Varnish—Designed for use on floors, interior trim and woodwork, and exterior work not completely exposed to the elements. Is excellent in its resistance to both hot and cold water, and contains positive overnight dry. It is unusually high in gloss and build, but at the same time shows little discoloration over delicate shades. Recommended for previously finished as well as new and unfinished wood surfaces.—128.

Marine Spar Varnish—Intended for use on new wood or on previously varnished wood where it is not possible or necessary to remove the old finish completely. An excellent medium to secure a satisfactory build with few coats. Eliminates the necessity of a wood primer. In many cases, one coat is sufficient to complete the job.

Dries dust free in approximately 30 minutes, tack-free in four to five hours, and is ready for another coat in six to eight hours. It dries with a hard, tough, flexible, water-resistant film, with excellent exterior durability and good adhesion to wood and metal. —124.

Sterilkote—A porcelain-like finish that is elastic and tough enough to stand hot washing solutions, abrasion and rough usage. Sterilkote in clear or in colors, including irridescents, can be used over any type of metal or plastic surface to enhance the beauty of the surface and increase its durability. You can even boil the finished panels in super strength soap and alkali solutions without injuring the finish. Can be applied by spraying, dipping or roller coating, and can be baked quickly at temperatures slightly over 300° F.—271.

EGYPTIAN high-bake N.F.R.

A tough, mar-proof, chemically resistant synthetic finish for all types of metal products . . . Extremely durable. Increases resistance to abrasion and other forms of wear

WIDE RANGE OF BAKING TEMPERATURES

SPECIAL UNDER COATS FOR ROUGH CASTINGS WHICH AIR DRY FOR SANDING YET MAY BE BAKED AS A COMPOSITE FINISH AFTER APPLICATION OF EGYPTIAN high-bake N.F.R.

ONE COAT DIRECTLY ON SMOOTH METALS. NO PRIMING COAT NECESSARY.

Ask for further information

THE EGYPTIAN LACQUER MANUFACTURING CO.
ROCKEFELLER CENTER
NEW YORK

EGYPTIAN FINISHES

● In addition to High-Bake N. F. R. we also make a complete line of clear and pigmented lacquers for standard and individual requirements. These are furnished for spray dip or brush application . . . Air-dry and bake.

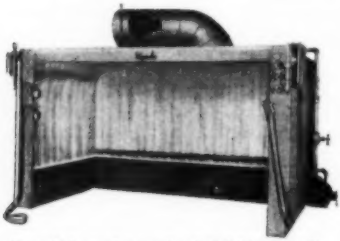
Ask for details

EGYPTIAN FINISHES

EGYPTIAN *Superior* FINISHES

Water-Wash Spray Booth

The new Paasche Water-Wash Airfinishing Booth may be had with water wash for back, the sides, and at bottom. The water-wash below shelf is



Paasche's water-wash airfinishing booth.

a particularly desirable feature when shelf-type water-wash booths are selected. The water-wash airfinishing booth includes panels, a wash chamber, settling pan, eliminator plates, non-clogging nozzles, removable strainer and float valve. The flow of water is 4 gallons per minute per foot of booth width, providing a good cleaning and washing operation.

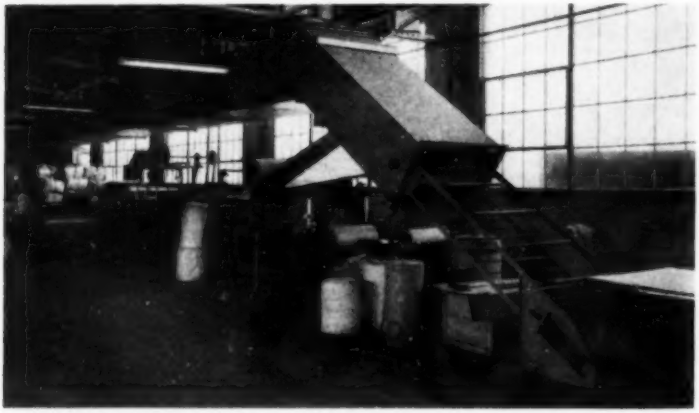
New...

MATERIALS SUPPLIES EQUIPMENT

These new type booths reduce fire hazards and effectively wash away all overspray by curtain of water. Solids are prevented from accumulating on rear and side-walls, ventilating fan and exhaust piping, and no solids or overspray are exhausted outside. These booths may be had in all types and sizes. They are manufactured by the Paasche Airbrush Co., 1919 Diversey Parkway, Chicago, Ill.

Drying Textile Coatings

According to news released by the Schmieg Sheet Metal Works, Detroit, Mich., an innovation is brought into the textile industry through the initial use of a specially engineered

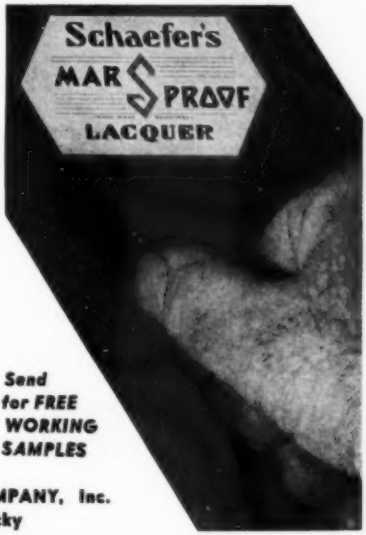


A Schmieg overhead conveyor oven for drying sprayed coatings on textile stock.

HERE it is!

cannot be marred or scratched

A lacquer finish that cannot be marred or scratched with the thumbnail, or other destructive agencies—a much tougher piece of goods than the ordinary lacquers. It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods... It is made in either the Clear Gloss Rubbing or the Satin Finish. Mar Proof Lacquer Sealer is recommended for the first coat.



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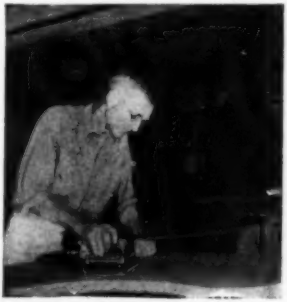
THE SCHAEFER VARNISH COMPANY, Inc.
Louisville — — Kentucky



NEW EASY WAY TO CUT SANDING COSTS 25 TO 75%

ONE HAND DOES THE WORK OF THREE

At last, sanding has been mechanized! No more laborious time-eating hand-sanding. Sterling's portable Speed-Bloc Sander now enables one man to do the work of three. It speeds up production, cuts labor and abrasive cost from 25 to 75% and increases profits. Soon pays for itself.

Easy to operate—one hand guides the Sterling. No surface stumps it—metal, wood or composition. Sands wet or dry; rubs and finishes flat or curved surfaces; sands filler coats; "feathers" spot jobs.

WRITE FOR FULL DETAILS NOW

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Sterling TOOL PRODUCTS COMPANY

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PEARL ESSENCE

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IT STAYS THE
ORIGINAL COLOR

The world's largest producers of PEARL ESSENCE

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153 Waverly Place, New York

FACTORIES:
ROSELLE, N. J.—EASTPORT, MAINE

overhead oven. Several merits are claimed for this new equipment by the manufacturer.

Aside from its distinctive overhead feature, which allows the use of an oven without yielding a foot of valuable floor space to its accommodation, the unit requires no maintenance, according to the makers.

The particular installation shown in the accompanying illustration allows the spray booth to be located directly underneath. Here, jute and cotton are sprayed with latex to add strength and resiliency to the product, which is used under carpet and on cushions of automobiles. The material travels automatically in a continuous piece from a spray, through the drying oven, and is never touched by human hands from the time it leaves the needling machine until it reaches the delivery platform.

Notwithstanding the merits it possesses in efficiency of operation, the oven has the attractiveness of low initial cost.

Automatic Water Drain for Air Lines

A new automatic water drain for use in compressed-air lines is now being marketed by The DeVilbiss Co., Toledo, Ohio. It is simple in construction, positive in action, and thoroughly trouble-free in operation. Available with four convenient fitting assemblies, it is intended for installation in air lines, on air compressing outfits, or air receivers. It is to be known as DeVilbiss Type HOD.

This device automatically drains the air line or air receiver, preventing water from being carried into the tool being used. It thereby prevents rusting and corroding, and assures a suppy of air free of any moisture. It eliminates the ne-

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STAINS
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THRESHER'S — High Standard Varnishes — MADE GOOD SINCE 1859

THE THRESHER VARNISH COMPANY
DAYTON, OHIO

PAINT—VARNISH—ENAMEL—LACQUER

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WOOD, FABRIC, RUBBER, FOIL, PAPER—
unusual metal coatings, new plastic finishes . . . . . .

Whatever your product, the DURALAC chemists are prepared to formulate a custom finish that will do the job better every time.

Follow the lead of leading manufacturers. Specify a perfected SEA-LAC Lacquer, Enamel or Synthetic . . . . . made to order for you.

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NEWARK. N. J.

FORM - A - ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

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We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

FORM - A - ROC

Baking schedule is of great flexibility, permitting from 5 - 50 minutes at 250 - 375° F.

FORM - A - ROC

No matter which of the present worthy finishes of this type you may be using or planning to use we sincerely recommend that you investigate

FORM - A - ROC

MADE BY

THE VARNISH PRODUCTS CO.

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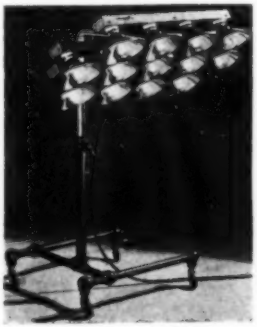
CLEVELAND, O.

cessity of daily hand draining, and provides positive protection against such factors as carelessness, oversight, or unusual atmospheric conditions. The new Water Drain is operated automatically by a slight fluctuation of the main-line air pressure. A variation of as little as 5-lbs. is sufficient for its operation. A manual drain is provided for use in periods when the main air line is not in use.

Portable Light Infra-Red Ray Unit

The Nalco "13" Light Infra-Red Ray Unit for radiant energy baking, heating, drying and dehydrating will serve practical purposes for many drying installations. This portable unit is mounted on casters and can be easily



New 13-lamp portable infra-red unit.

moved into any desired position. It can be tilted at any angle and may be swung over into a vertical position as well as used horizontal. The unit can be raised to a height well over 8-ft., or it can be dropped to within 12-in. of the floor.

This unit is sufficiently large to dry a surface approximately 4x6-ft., either greater or less, depending upon the distance it is placed from the surface or products to be dried. For example, two of these units, properly placed, will give complete coverage to both

HILO

Super Vitra Carlite

Quick Bake Synthetic

EXTRA WHITENESS
EXTRA DURABILITY
EXTRA COLOR RETENTION

also

Black and Rubber Japans
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H. V. WALKER CO.

MODERN PRODUCTION FINISHES

Elizabeth, New Jersey

sides of the front or back of an automobile—or a complete side.

Switches are mounted on each row of lamps so that a combination of 4 or 9 or 13 lamps, depending upon the area to be covered, may be used. Standard equipment of the Nalco "13" Lamp Portable Unit includes 15-ft. of the approved cord and plug, thirteen 7⅝-in. polished aluminum reflectors and thirteen 260-watt, G-25 Nalco dritherm carbon-filament lamps.

The manufacturer is the North American Electric Lamp Co., 1030 Tyler St., St. Louis, Mo.

"Staynew" Water Filter

Many plants already using the "Protectomotor" air filters manufactured by Staynew Filter Corp., Rochester, N. Y., for the complete removal of dirt, rust, pipe scale and water from paint-spray air lines will be interested in a new use for the "Radial Fin" type of filter made by this company. This new use is the filtration of water for various industrial processes.

The new filter, known as the Model CPHLS for Water Filtration, has already proven its value, under actual working conditions, to users of humidifying apparatus, chemical plants, etc.

Construction is simple and filtering action is positive. All water passes through special fabric filter mediums that have the advantages of high efficiency plus minimum restriction to water flow—advantages which are increased by the radial fin construction. This construction permits a large area of filtering medium to occupy a relatively small space. For example, a radial fin construction insert only 11-in. high by 8¼-in. in diameter possesses an active filtering area of 1325-sq.in.

There are no moving parts in the new filter, and the large filtering area permits long periods of operation without any attention whatever. When

necessary, the entire insert can be easily removed by merely unbolting the head and removing one wing nut. The units can be arranged so that cleaning is effected by backwashing with clean water.

Irwin Conveyor Finishing Kiln

The Irwin Equipment Co., 23 Summer Ave., Grand Rapids, Mich., announces a new conveyor finishing kiln designed to shorten the time required in finishing—through the application of controlled drying to all types of stains, varnishes and finishes.

Water stain can be dried in 15 to 30 minutes; fillers in one to three hours; shellacs, sealers and lacquers in one hour; varnishes in one to four hours. It not only shortens the time required in finishing from 60 to 75%, but also reduces finishing room space from 33-1/3 to 50%, as compared with the time and space required for air drying.

Drying takes place in an insulated enclosure through which the furniture is pushed over a hard maple floor by a patented conveyor mechanism. Large pieces are pushed on their skids; smaller articles on specially designed trucks. A motor of ½ to 1-hp. furnishes power to operate the conveyor mechanism.

Specially designed pusher bars engage in the links of the chain and are dropped in place behind each unit as it enters the kiln, these bars being automatically disengaged when the unit has completed its travel, making it possible for one operator to attend to both ends of the conveyor.

These conveyor units are designed to handle, in a minimum amount of space, varying sized pieces of furniture. Due to the unique push-bar construction, all units can be handled with not over 3-in. between pieces, regardless of their size or shape. Small pieces can be double-decked on trucks so that a dozen dining room chairs occupy no more space than a pair of servers.

SUNBRITE

GOLD
COPPER
SILVER
ALUMINUM

POWDER AND PASTE (Patent Applied For)

Write for Sample Today

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Ahead with
NEW CROWN GUNS
Cut COST Per Piece PAINTED
with CROWN "20" • Gives Peak Performance on all types of Synthetic and Lacquer jobs • ALL CONTROLS . . . Spray Width, Material Flow and Air Adjustment . . . ON THE GUN! Write for Catalog.
CROWN SPRAY GUN MFG. CO.
1716 Venice, Los Angeles, Calif.

A Superior Varnish for Fir or Gumwood

RX-239 SPEED - DRY VARNISH

A vastly improved, production-proven clear gloss varnish. Dries in 2-3 hours even in cold weather. A single spray coat provides the build and appearance of 2 coats of ordinary varnish.

For economy as well as for faster production, you will find that one coat of our special lacquer sealer followed by one coat of SPEED-DRY VARNISH is an unequalled combination for spray finishing fir or gumwood.

MARTIN VARNISH CO.
900 WEST 49TH PLACE
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Power Graining Machine

1. Cycle time 25 seconds.
2. Will cover a surface up to 31" x 80".
3. Automatic roll cleaner.
4. Cuts production costs.

GRAINING PLATE DIVISION
American Electrotype Company
104 E. MASON ST. • MILWAUKEE, WIS.

Temperatures of 118 to 125°F. have been found to be the most efficient and effective operating range for the kiln. This temperature range gives a constant relative humidity of about 20%, with a variation of possibly 2° either way. This amount of humidity works equally well with all types of standard finishing materials. If additional humidity is desired, an automatic humidifier is available.

Rearmament Finishes

THE Quartermaster Corps and Ordnance Division are taking full advantage of the developments in synthetic resins, pigments and chemicals in their specifications for primers, surfacers and enamels to be used on trucks, tanks, tractors, road-building machinery, gun carriages, trailers, motorcycles and other equipment now being built to mechanize the army under the rearmament program.

Primers make use of the rust-inhibitive properties of zinc chromate and lead chromate, as well as the waterproof qualities of synthetic varnishes. Surfacers dry hard quickly, sand easily and still hold out the finishing coats to good advantage.

Enamels are of a new lusterless type, for camouflage purposes, especially when photographed from the air. The dullness must be permanent and not easily removed by washing with soap and water. With it all, the enamels must be very durable under outside exposure or when soaked in water or gasoline, even though they set out of dust in 30 minutes or are baked hard in one hour at 250° F.

Even the marking paints are so designed that while they are visible to the eye they are practically invisible when photographed against the olive green lusterless enamel background.—L. F. SEARS.

R. Zeller Leaves Breckwoldt

Richard Zeller, Dolgeville, N. Y., has severed his connection as Manager of the Industrial Finishes Division of Julius Breckwoldt & Son, Inc., Dolgeville, N. Y. His future plans are not definite but he expects to re-enter the manufacturing field of industrial finishes soon.

Spray Painting School Opens

The DeVilbiss Co., 300 Phillips Ave., Toledo, Ohio, manufacturer of spray painting equipment, has announced the schedule of its Training School for spray painting equipment users for the first six months of 1941.

This school, which is open to industrial painters, master painters, automobile refinishers and all others interested in learning the technique of spray painting and the use and care of spray painting equipment, will be held at the company's Toledo, Ohio, plant.

Dates for the start of each training period are: January 20, February 17, March 17, April 21, May 19, and June 23. Sessions will last for one week, each.

Early as possible enrollment in the school is advised. Size of classes is limited. Because of the facilities for study available only at these sessions, the DeVilbiss Training School always has, in the past, been well attended.

Men attending the school are offered the advantage of special rates in Toledo hotels and boarding houses. These already have been arranged.

Western Scene Reproduced on Art Calendar by Screen Process

The Fred'k A. Stresen-Reuter Calendars for 1941 have a silk-screen color reproduction (13x18-in.) of an interesting incident in western mountain country by Filmore Browne. It shows an armed westerner on horseback, leading a pack horse and fording a mountain stream. A grizzly bear suddenly appears as a threat near the opposite side. The title: "Dispute at the Ford."

The reproduction of this painting has been done by the silk-screen process method wherein the original was photographed with a 3-color separation camera and these separations reproduced on the silk screen as a stencil. Through this stencil the prints were made by hand, using Essar Multi-Colors, and the colors matched as closely as possible to the original. This work was done by the Oil Color Litho Co. of Chicago.

Fred'k A. Stresen-Reuter, Inc., manufactures finishing materials and the company's address is 2113 Medill Ave., Chicago, Ill.

For

PROFITS

IN 1941

Look into the possibilities of Flocking.

Any novelty treated with a spray-coating of

CLAREMONT

FLOCKS

COTTON — WOOL — RAYON

carries sales appeal that no other finish can create. The cost of application is low and permits profitable pricing of the finished article.

Write for color card and sample.

CLAREMONT WASTE MFG. CO.

CLAREMONT, N. H.

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Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metalworking, woodworking and miscellaneous industrial plants where production finishing is a major operation in parts and products manufacture.

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EDITORIAL

New Clear Metal Lacquers Stand Two Years of Exposure

★ New developments in clear metal lacquers were not very important in the few years preceding 1939 and 1940. Before then, it was not expected that clear finishes should have anywhere near the outside durability of pigmented finishes. This was due to the fact that ultra-violet rays in sunlight penetrated the clears so much deeper than was the case with the pigmented finishes, and thus brought about the breakdown of the film at a much accelerated rate.

Through the development of new raw materials and careful formulation we now have clear air-drying lacquers that are really resistant to ultra-violet light. Whereas older types of lacquer were considered good if they stood up for a year of outside exposure on brass, the new lacquers will stand up in better shape for over two years. Of course, these lacquers are more expensive than older types, but when you consider that preparation of the surface is the biggest item of expense in this type of finishing, a considerable increase can be tolerated in the cost of the lacquer if the attractive life of the article can be increased slightly, to say nothing of a 100% increase.—HARRY DANIELS.

Improved Furniture Finishes Remove Cause for Worry

★ I have noticed many improvements in finishing materials for wood finishing. The results obtained are very much superior to what we could get a few years ago. Non-grain-raising stains, glazes, and lacquer coatings are the principal make-up of numerous wood finishes. These materials, today, are made up in such a way that they blend or knead together. In other words, they are made to work in harmony with one another and, as a result, we get a very fine fin-

★ Guest Editorial.... Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

ish that is both beautiful and durable.

The manufacturer of furniture today does not have to worry about the finish on his goods—providing he uses the best of finishing materials (as, in the long run, he is money ahead by not purchasing poor materials or substitutes). All manufacturers of finishing materials today can be depended upon to give the best of services and materials of high grade—providing they are asked for this particular type.

Of course, we all know that there are on the market certain types of materials known as the cheaper class. Sometimes these are tried by a manufacturer, who may believe he is saving by the use of same. But later on he finds out to his sorrow that not only has he cheapened his own product by the use of these cheap materials but he has also lost the demand for his output. So I, for one, would say that we should strive to keep up the good improvements on finishing materials, therefore producing a more durable product for the market.—F. W.

Non-Check Durable Finishes; Faster Rubbing Methods

* Many fine and extremely durable lacquer and varnish finishes, offered by responsible manufacturers, are daily rejected by foremen finishers in favor of very "short" easily-rubbed coatings, simply because they like to follow the human "course of least resistance" in rubbing operations.

Most supervisors, under pressure of their superiors to "shove it out fast", are forced to use fast-setting brittle finishes, with no thought to the future. Often this policy proves disastrous when complaints pour in from dealers concerning mars, checks, and other indications of brittle finishes that can't stand expansion.

We all realize the need for rapid production and I am sure that speedy schedules can still be maintained if the foreman will delve into his rubbing methods and make use of modern cutting and polishing materials.

How can anyone use 20-year-old rubbing methods on our up-to-the-minute build-to-take-it finishes and expect high speed production?

Instead of using pumice stone and oil as the exclusive rubbing medium, try wet-or-dry abrasive paper (first rub, 280A) with rubbing oil and oleum spirits (or similar product) for the first rub. Then use a fine paper (360A or 400) for the next rub. If an extra fine polish is desired, use a mixture of pumice

Read about the many NEW DESPATCH FEATURES that improve finishes and permit new savings. They are presented for the industry in the new DESPATCH BULLETIN NO. 51

DESPATCH OVEN COMPANY

MINNEAPOLIS MINNESOTA

and rottenstone for a final rub. For a mirror-like gloss, use a high-speed buffer with a lamb's wool pad, after the rubbing oil is carefully cleaned off.

There are numerous buffing compounds on the market with metallic polishing agents that are economical to use and are effective for bringing out depth and high luster. They leave no oily residue to attract dust and finger-prints later on.—N. H. VOIGT.

Bull Dog Quality Lacquer Sticks

The perfect Lacquer Burning-in Cement. Will not raise or soften and is not affected by any type of lacquer.

LARGEST LINE OF COLORS

Write for Color Card, showing both Lacquer and Shellac Stick Colors and for the name of nearest distributor.

UNIVERSAL SHELLAC STICK CO., Inc.
537 W. Broadway New York, N. Y.

Despatch Appoints G. B. Duff as Sales Engineer in East

The Despatch Oven Co., Minneapolis, Minn., announces the appointment of Mr. Gerald B. Duff, 68 Clinton Ave., Newark, N. J., as exclusive sales engineer for Despatch furnaces and core ovens in the Newark and New York territory. Mr. Duff has had vast experience in the furnace field. His appointment is another step forward in the Despatch program to give prospective buyers service in solving their furnace and core oven problems.

Spray Booth-Oven Catalogue

A new 16-page booklet (8½x11-in.) "wire-o-bound" between heavy red covers contains interesting information and attractive illustrations on water-wash (hydro whirl) spray booths, conveyor ovens, plant layouts, ventilating equipment, and metal-cleaning apparatus, as manufactured and installed by the Industrial Sheet Metal Works, Inc., 628 E. Forest Ave., Detroit, Mich. Copies free on request.

Binks Announces Prize Winners at A. S. I. Show

Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill., has announced the official results of a Guessing Contest, as to the number of operations that are necessary to perfect a Binks Thor Model No. 7 spray gun from a drop forging to the finished product.

The correct number of operations is 403. Hundreds of entries were received in this contest, which was held at the recent A. S. I. Show in Chicago. Prizes were awarded to Burton Cbulski, (First Prize) South Bend, Ind.; Gilbert Sullivan, Albany, N. Y.; Jake Whitlock, Terre Haute, Ind.; Gordon Bennett, Fowler, Ind.; L. S. Langan, Washington, D. C.; Francis Snyder, Sidney, Ohio; Wm. Radzinske, Manitowoc, Wisc.; Emory R. Young, Charleston, W. Va.

Exhibit of Binks Mfg. Co. at Automotive Service Industries Show, Navy Pier, Chicago.

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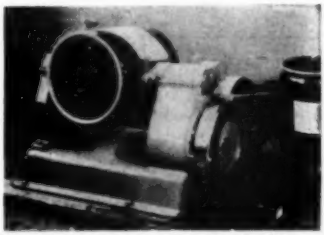
Ken - Wood Brands
Box 652, Asheville, N. C.

Rejuvenates 5 - gal. cans of Paint, etc., in 3 to 10 minutes without opening the can



No matter how much or how long finishing materials have settled, from lack of use, the "Miracle" will restore them to their original consistence in a few minutes. Noiseless in operation—clean to use. Also machines for ¼-pint to 50-gal. drum capacity.

Miracle Paint Rejuvenator Co., Inc.
500 Robert Street St. Paul, Minn.

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* * *

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